Engineering Library
GENERAL LIBRARY
APR 10 1919
UNIV. OF MICH.

THE ARCHITECTURAL FORUM

FOR QUARTER CENTURY THE BRICKBUILDER

MODERN FARM BUILDINGS

Text by Elisha H. Janes
Plate Illustrations from the Designs of
ALFRED HOPKINS
ELISHA H. JANES
DELANO & ALDRICH
BENJAMIN W. MORRIS
DUHRING, OKIE & ZIEGLER

CONSTRUCTION PROBLEMS

By N. A. Richards, Assoc. Member S. A. C. E.

THE CLIENT AND HIS PROBLEM

By C. Stanley Taylor

MARCH 1919

PUBLISHED *by* ROGERS AND MANSON COMPANY
BOSTON AND NEW YORK AND DEVOTED TO THE
ART SCIENCE AND BUSINESS OF BUILDING

CONTENTS OPP. PAGE 70 ADVERTISING INDEX PAGE 72

Established 1866

Henry Maurer & Son

Manufacturers of

HOLLOW TILE

Fireproofing Materials

OF EVERY DESCRIPTION

Flat and Segment Arches
Partitions, Furring, Etc.

Hollow Wall Blocks for Buildings

GENERAL OFFICE
420 East 23d Street - New York

Philadelphia Office, Penna Building

Works . . . . . Maurer, New Jersey

PFOTENHAUER-NESBIT CO.

ST. JAMES BUILDING, BROADWAY, Cor. 26th ST.
NEW YORK

IMPERVIOUS FRONT BRICK

ROUGH TEXTURE
SMOOTH FACE

IN RED, BUFF, GRAY, MOTTLED, WHITE, ETC.

Enameled Brick, Fire Brick, Roofing Tiles, Paving Clinkers, Etc.

Genuine "KITTANING" Brick
Genuine "HARVARD" Brick
Genuine "GREENDALE" Rugs
Genuine "Fallston Iron Spot" Brick
Genuine "Fallston Weave Texture" Brick

The Winkle Terra Cotta Company

St. Louis, Missouri

Manufacturers of

Architectural Terra Cotta

In All Colors and Finishes

ST. LOUIS TERRA COTTA CO.

Manufacturers of

Architectural
AND
Ornamental

TERRA COTTA

IN ALL COLORS

THE EDITORS FORUM

A PROBLEM that always has a special appeal for architects is made the feature of this issue. This is the farm building group and the illustrations presented herewith show how extensive in many cases these groups are and what a great variety of architectural treatment is possible in their design. The farm group presents opportunities for composition, attractive roof lines and picturesque settings unequaled in any other type of building. In no less measure does it demand a specialized knowledge of planning and equipment details, for the arrangement of a cow stable, poultry house or any other farm building is as important in determining success or failure of the farm as a factory building is to the industry it houses. Planning a farm group, therefore, can only be done satisfactorily after a thorough acquaintance with plans of administration, knowledge of the habits and requirements of the various domestic animals and the appliances and equipment in common use in farming.

Farm buildings are of special interest at this time, because of the greatly increased attention paid to farming since our experience in war. Agriculture was the one industry that was speeded up throughout all sections of the United States. No farm was too small or too far removed from the centers of activity to feel the call for greater production that the war made necessary, and there was, as a result, a rejuvenation of farming firmly established, that will prove one of the great and lasting benefits of the war. It has been made clear to us that no country can be great if the tillage of the soil is neglected and when it is realized that for a number of years to come, many of the European countries, badly devasted by war, will be dependent on us for food products, the necessity of great agricultural resources is apparent.

Our farms need new buildings, many new farms will be established, in fact a great revival of agriculture will probably be the most outstanding characteristic of our reconstruction period. Federal aid may be given the returned soldier to take up farming after some such method as Secretary Franklin K. Lane proposes for the use of cut-over and swamp lands. This whole movement is one of great interest to the architectural profession and an active participation by architects in any attempt to improve the character of American farm buildings should show wonderfully satisfactory results. Architects have for many years planned well equipped farm buildings for the large private landowner who farms for the pleasure of it, but just as the workingman has never enjoyed the advantages of a dwelling house to which an architect has given thought, so the farmer has accepted the country mason's or carpenter's building and counted himself lucky. He now feels the need for better constructed and planned buildings and because of the unparalleled prosperity he has recently enjoyed, is in better financial circumstances than ever before, to make investments in better and larger buildings. It is the architect's present opportunity and duty to provide for the farm not only buildings of practical utility, but of attractive architecture as well.

Boston Society of Architects

RESOLUTIONS
ON THE DEATH OF
ARTHUR DURAND ROGERS

RESOLVED: *That the Boston Society of Architects has learned with deep regret of the death of Arthur Durand Rogers and desires to place on record its appreciation of his valuable service in the stimulation of good architecture in this country.*

Although not specially trained as an architect, his keen perception of the fundamentally true and beautiful in the building art permeated the publications with which he was identified and these became a source of inspiration and education to the profession.

His genial personality and uniform courtesy won for him the respect and friendship of all with whom he came in contact. In his death many architects throughout the United States will feel a sense of sorrow and the profession as a whole a loss not easily retrieved.

RESOLVED: *That these resolutions be spread upon the records of the Society and that copies be sent to Mr. Rogers' family and to his business associates.*

THE need that architects have long felt for better training to equip the members of the crafts on whom they must rely for the actual execution of the plans they conceive, is promised a measure of fulfillment in the first unit of the National Apprentice Schools of Design soon to be established in New York.

The sponsors of the movement are the Architectural League of New York, American Institute of Architects, National Academy of Design, and manufacturers whose products are dependent on the arts and crafts. The project has been advanced by constructive work of the Architectural League, with which the other organizations have enthusiastically co-operated. This assures the schools, which will be established in all centers where there is need for them, a powerful artistic support never accorded any similar enterprise. The promise of good results is indicated by the intention to employ only those men for instruction as are actively engaged in the practical pursuit of their craft. At the start classes will be held only in the evening, but as soon as practicable day sessions will be held also. Instruction will be free, but there will be a small matriculation fee per season.

Varnish Specifications

In architectural work, wood finishing operations are not commenced by the painter, but by the architect.

Definite specifications are therefore essential in order to shut out the use of inferior or inappropriate finishing materials and insure a handsome, lasting finish.

The laity knows comparatively little in a practical way about varnish, and the appearance of a fine interior can easily be ruined by improper treatment or materials in the finishing process.

There is no surer preliminary step to perfectly finished woodwork, floors, walls and ceilings, than the specification of Berry Brothers' varnishes, stains and enamels.

BERRY BROTHERS INC.
World's Largest Makers
Varnishes and Paint Specialties

Detroit, Michigan Walkerville, Ontario

(742)

Liquid Granite FLOOR VARNISH Luxeberry WHITE ENAMEL

THE ARCHITECTURAL FORUM

VOLUME XXX NUMBER 3

CONTENTS for MARCH 1919

PLATE ILLUSTRATIONS	Architect	Plate
RECENT FARM BUILDINGS OF COMMODORE FRED BOURNE, OAKDALE, L. I., N. Y.	*Alfred Hopkins*	33, 34
ADOLPH MOLLENHAUER, ESQ., BAYSHORE, L. I., N. Y.	*Alfred Hopkins*	35, 36
MORTIMER SCHIFF, ESQ., OYSTER BAY, L. I., N. Y.	*Alfred Hopkins*	37, 33
ANSON W. BURCHARD, ESQ., LOCUST VALLEY, L. I., N. Y.	*Alfred Hopkins*	39, 40
EFFINGHAM LAWRENCE, ESQ., COLD SPRING, N. Y.	*Alfred Hopkins*	40, 41
GLENN STEWART, ESQ., LOCUST VALLEY, L. I., N. Y.	*Alfred Hopkins*	42, 44
J. C. BALDWIN, JR., ESQ., MT. KISCO, N. Y.	*Benjamin Wistar Morris*	45
MESSRS. L. & R. W. JOHNSON, CROYDEN, PA.	*Duhring, Okie & Ziegler*	45
FELIX M. WARBURG, ESQ. WHITE PLAINS, N. Y.	*Elisha Harris Janes*	47, 48

LETTERPRESS	Author	Page
VIEW OF LOWER BROADWAY, NEW YORK CITY.		*Frontispiece*
THE EDITORS' FORUM		19
BUILDINGS FOR THE MODERN FARM Part I. Group Planning and Design of Major Buildings.	*Elisha Harris Janes*	63
SOME RECENT FARM BUILDINGS FROM THE DESIGNS OF ALFRED HOPKINS, ARCHITECT.		75
THE COTTAGE PLANNED ORPHANAGE, Part II. Details of Cottages and Accessory Buildings.	*Harold C. Whitehouse*	77
A BRICK COTTAGE AT SUMMIT, N. J. Howard Major, Architect.		82
THE ARCHITECT OF THE FUTURE Part III. The Client and His Problem.	*C. Stanley Taylor*	83
CONSTRUCTION PROBLEMS Rebuilding the Custom House at Boston, Mass.	*N. A. Richards, Assoc. Mem. A. S. C. E.*	87
ARTHUR DURAND ROGERS An Appreciation of the Man and His Work.	*Ernest John Russell*	91
EDITORIAL COMMENT		92

Published Monthly by
ROGERS AND MANSON COMPANY
85 Water Street, Boston, Mass.
Advertising Department, 42 West 39th Street, New York

Yearly Subscription, payable in advance, U.S.A., Insular Possessions and Cuba $5.00
Canada $5.50 Foreign Countries in the Postal Union 6.00
Single Copies 50 cents All Copies Mailed Flat

Trade Supplied by American News Company and its Branches. Entered as Second Class Matter, March 12, 1892, at the Post Office at Boston, Mass.
Copyright, 1919, by Rogers and Manson Company

VIEW OF LOWER BROADWAY, NEW YORK CITY
From Photograph by John Wallace Gillies

The Architectural Forum series of distinctive architectural street compositions in New York City. The Singer Tower and City Investing Buildings are shown in silhouette at left and Park Row Building and old Post Office at right.

THE ARCHITECTURAL FORUM
FOR QUARTER CENTURY THE BRICKBUILDER
VOLUME XXX MARCH 1919 NUMBER 3

Buildings for the Modern Farm

I. GROUP PLANNING AND DESIGN OF MAJOR BUILDINGS

By ELISHA HARRIS JANES

MUCH has been written about the large farms, or, rather, estates, of this country, those of the gentleman farmer about which we have all heard the story of a quart of milk costing the same as a bottle of champagne. Little attention, however, has been paid to the smaller farms belonging to those who cannot afford to lay out a large series of buildings just to decorate the landscape, or to those who can only build that which is necessary, whether it be for their business, to assist in the expenses of the household or to enjoy the modest pleasure of creating for themselves. It is to the modest farmers that attention must be turned to assist in improving their farms or estates, however small, in a manner in keeping with their means, yet in harmony with the surroundings, and to prevent them from erecting uninteresting, ordinary, box-like barns and sheds, in order that our view of the farm buildings may be a pleasure. The American is beginning to realize that he owes it to his neighbor as well as himself to have his individual surroundings attractive as well as practical.

What is to be the effect on the many country boys who have spent a year or more in France or Italy with the troops? Many of the buildings there have been devastated beyond imagination, but still enough remained of the farm buildings, dove cotes, gate lodges, etc., each with its individual charm and beauty, for them to appreciate, and from which they have received undoubted impressions. How can they return without being influenced by these buildings, that have a touch of beauty and charm no matter how plain they are or to what simple use they are put, and above all, blend perfectly with the surroundings? Will it not have some of the effect that the campaigns of Charles VIII and Louis XII exerted on France, removing her medieval tastes and acquainting her with the renaissance; or the memorable expedition of Francis I which awoke in the French the desire of rivalling Italy in her artistic career? Let us hope it will, and that when the silo is to be built the coming farmer will think of Normandy, or if it is to be a barn, he will recall the one he was billeted at and take out his snapshots and say to his dad, "Let's have something like that." If this happens it will be at least one benefit derived from our participation in the war.

Some one has said the most important crop raised on a farm is the children. Why, then, is it not most important to have buildings and surroundings express neatness, taste and harmony in order to procure the proper psychological influence? Environment in all cases has a subconscious but potent effect, and on the farm it is of special value in providing a strong attraction to keep the boys contented with farm life.

The agricultural colleges are improving this work considerably by their literature and reading courses that are distributed free. They are increasing the desire to improve the farms but, unfortunately, not always with the best of taste. Good buildings do not necessarily mean expensive work. So often we see where a farmer has spent considerable money to enhance his buildings or home, but his advice has come from his neighbor who was a plumber last week, an architect this week, and probably the mason next week. Can we wonder at the results? It would be a great boon if the agricultural colleges would have in their curricula a course in architecture sufficient to mould the taste of the students to some degree. Already in France the government is issuing typical designs of all classes of farm and village buildings, made by their best architects, to give the owners practical help, to hold their tastes and to insure the retaining of the charm of the villages that have been wiped out by the war.

The greatest influence towards better buildings (another triumph for the advertiser) is that given in many catalogs published by the building material and supply companies, especially in the interests of cement and terra cotta. Each issue of these improves from the standpoint of taste. When we look at the hideous drawings shown in the past (and they were about the only pictures the rural districts saw of model barns, silos, water troughs, etc.,) how could we expect the tastes of these people to improve? If the catalogs would illustrate good designs, show in contrast the typical country carpenter's building, practical from a utility point only, and the same plan adapted to the same use but with some thought of taste and composition in its design, followed by a comparison of respective costs, using the same materials, there would soon develop an increased

demand for material, and the farmer would begin to realize the value of taste.

The increasing cost of wood, the cost of upkeep in repairs and painting, and the high rates in insurance have influenced a change in materials, and as is usual when changes occur due to conditions, the adjustment develops for the better. The terra cotta and concrete block, with or without stucco, not only provides an economical benefit by the saving in upkeep and lessened fire risk, but gives a texture and charm, exceptionally fitting to buildings located in rural settings. Cement as a material also assists when we follow the influences from France and Italy.

As these ideas apply to the farmer so do they to him who farms for pleasure. Both will profit thereby, the former in having pleasing surroundings in which he is forced to live, and the latter, by increasing his pleasure in the knowledge that he has housed his animals well and is assisting and perhaps improving nature. For the architect the variety of shapes and requirements of the buildings give him a most interesting problem.

One fault in the disposition of our American farm buildings is that they are too scattered. It is difficult to find a reason for the location of some of them, unless they were placed where the largest pile of rocks happened to be when foundation work was begun, because of the consequent saving in labor. It takes little thought to realize that a grouping of the buildings is going to give the most practical results by the simplification of labor, by the saving of steps in carrying supplies, the concentration of drainage, the centralization of foods, and the practicability of all operations being easily supervised. As to the architectural side, consider what splendid and varied material the architect has to work with for almost any style or type of architecture, from that with the formal axis to the most rambling, and from classic to the wildest picturesque. For the large mass or central feature, the hay barn may be as imposing or small as one wishes and almost any shape; for the long lines there are the cow barns, farm stables, and poultry buildings; for the corners and accentuating points there are the silos and water towers which can be round, square, octagonal, high and thin, or low and broad. There are also buildings for the bull pen, the dairy and the farm hands, and as many courtyards as one wishes with always plenty of long sheds to tie them together.

Several groups are published in this issue which show that at last this phase of American architecture is improving. As an incident in showing the value of well designed farm buildings, the case of the buildings for Jacob Schiff, Esq., at Redbank, N. J., may be cited. When the neighbors on the Rumson Road heard that farm buildings were to be erected between that famous road and the Shrewsbury River, directly in line with their fine views, they were ready to rebel, but soon were contented when they saw the buildings illustrated herewith, and admitted that they improved the landscape. Here the problem was to keep the mass as low as possible, as the group is located in an open, flat field. It shows there is nothing to fear in letting these buildings express the purpose for which they are to be used, and that it is not necessary to attempt to masquerade a farm building as a house. This is a simple group arranged symmetrically, the hay barn with a driveway through it as the central feature, and the long, low wings on either side the cow barn and sheepfold. The projecting arms are,

View of Farm Buildings of Jacob Schiff, Esq., Redbank, N. J.
Elisha Harris Janes, Architect

View of Buildings of Jacob Schiff, Looking Across Farm-yard

on one side, the wagon shed and tool house, balanced by the gardener's cottage opposite. Attention is called in this last building to the manner in which the water tank is housed in the tower by repeating a feature of the tea house placed nearer the water. In the latter the tower is for a children's play room. This group is a splendid example of what can be done on simple lines. It would be difficult to make a less expensive plan for the same accommodation.

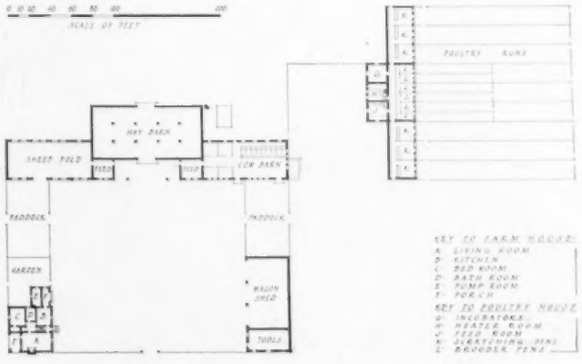
The group for Otto Kahn, Esq., at Cold Spring Harbor, L. I., is a straightforward, symmetrical plan in Colonial farm style with the silo giving just enough relief to prevent the group appearing too formal. Here the stable, wagon space and cow barn, with the hay and feed above, under one large roof, form the main and central feature. The wings are formed by the wagon shed on one side tied to the main structure with a fence, and on the other side the dairy building connected to the main building with a colonnade, all enclosing a courtyard which is to be extended when the help's and superintendent's cottages are added to the wings.

The buildings for James A. Burden, Esq., at Syosset, L. I., are more of the southern farm type. There is a smaller center feature of the cow barn with the hay loft over it. Here again the silo is valuable in relieving the severity and tying the stable wing to the main building. One wing is formed of the stables with the wagon shed connecting and to the latter is added the blacksmith shop and tool house. The other wing consisting of the dairy building and help's cottage is rightly disconnected with the cow barn, yet is in symmetry with the opposite wing. As in the other groups, they all form a large courtyard.

In the buildings at Cold Springs, N. Y., the architect has played with the units to his heart's content and evolved a most interesting result. The photograph reproduced was especially well timed in recording the taking in of the hay and the preparation for filling one of the silos. A second silo is disguised in the gable at the extreme left.

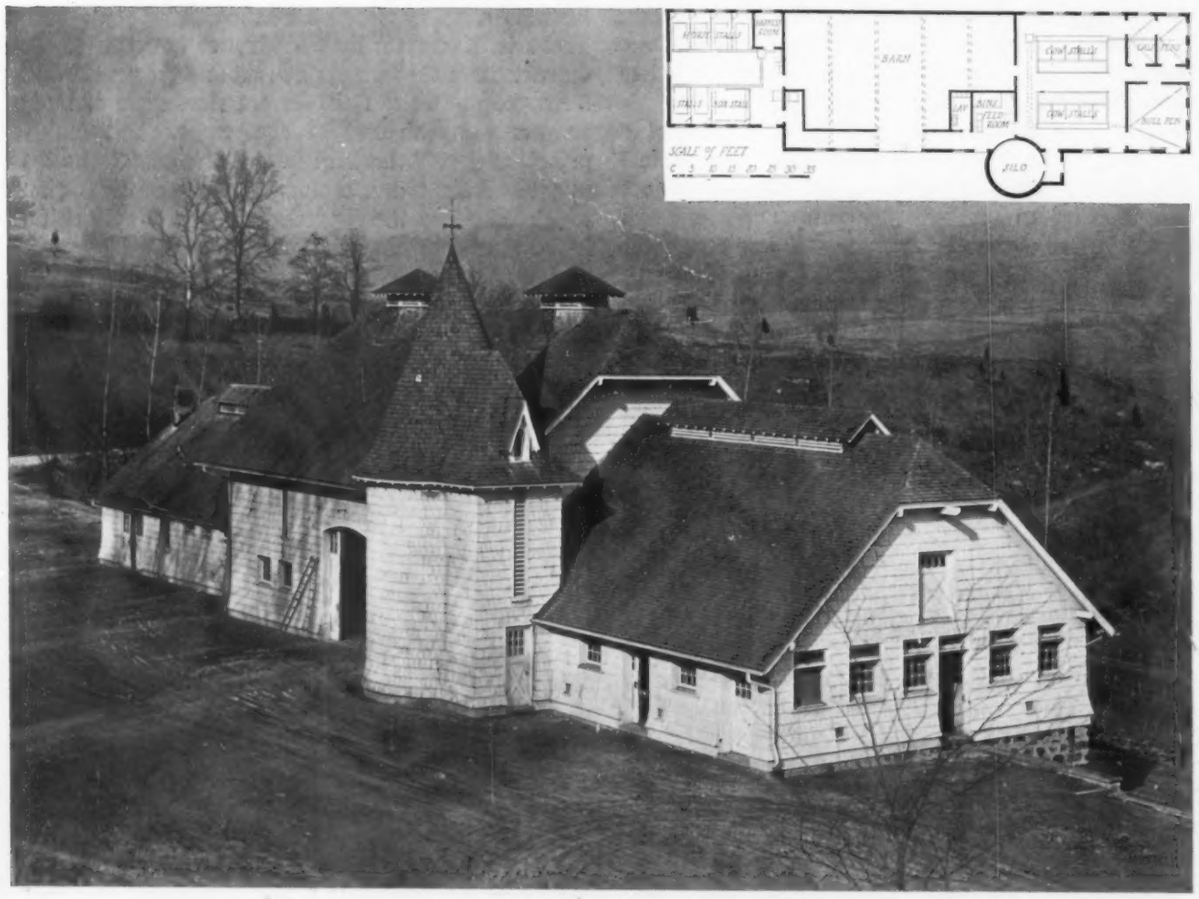
Public education has shown the public that all food should be produced under the most sanitary conditions, and that the care of all animals should be likewise sanitary to give most satisfactory results. There is, therefore, little difference between the requirements of the farm for market and the gentleman's farm except in the finish of exterior, style of maintenance and the cost of equipment. But on the principle that "the best is the cheapest" the last may be eliminated, and after all, if the considerations which influence the "producer for profit" are followed, the best plans will evolve.

Requirements relating to use of space and equipment apply in general to both types. Few realize how many items are to be considered when planning even a small farm. Whether provision for some requirements can be grouped in one room or must have separate space allotted, depends on the size of the farm, what it is to produce, in what quantity and of what quality the product is to be. As a guide or reminder the following requirements are given.



General Plan of Farm Buildings of Jacob Schiff, Esq.
Redbank, New Jersey
Elisha Harris Janes, Architect

GENERAL VIEW OF FARMHOUSE AND BARN



VIEW OF ENTRANCE SIDE OF FARM BARN

ESTATE OF ROBERT S. BREWSTER, ESQ., MT. KISCO, NEW YORK

DELANO & ALDRICH, ARCHITECTS

STABLE

Stalls
Box Stalls
Paddock
Grooming Room
Manure Pit
Bedding Balcony
Feed Room
Hay and Straw Loft
Carriage Room
Inside and Outside Wash
Carriage Shed
Toilet
Groom's Room
Blanket Room
Robe Room
Harness Room
Harness Cleaning Room
Boiler Room

GARAGE

Car Room
Implement Room
Car Pit
Repair Room
Supplies
Liveries
Robe Room
Oil Storage

FARM STABLE

Stall Room
Grooming Room
Harness Room
Manure Pit
Bedding Balcony
Feed Room
Hay and Straw Loft
Wagon Room
Wagon Shed
Wash
Farm Machine Shed
Spare Parts Shed
Tool Room
Shop
Forge Room
Ventilation

COW BARN

Milking Cows
Milking Room
Dry and Young Stock
Calving Pen
Bull Pen
Bull Run
Isolation Room
Feed Room
Silo
Silo Engine
Bedding Balcony
Vents
Manure Pits
Manure Trolley
Utensil Room
Cow Yard
Shelter and Windwalls
Watering Trough
Feeding Floors
Hay and Straw Room
Ventilation

DAIRY

Covered Passage
Milk Room
Separator Room
Refrigerator
Ice Room
Butter Room
Washing Room
Sterilizer Room
Bottling Room
Porch for Cans
Laundry
Dryer
Boiler Room
Lavatory
Shipping Room
Office

HAY BARN

Driveway
Ventilation
Feed Bins
Racks
Hay Fork and Trolley

SHEEP BARN

Sheepfold
Lambing Pens
Feed Room
Feeding Floor
Dipping Vat
Shearing Room
Winter Yard
Shepherd's Room
Root Cellar
Rams' Pens
Heat

KENNELS

Feed Room
Kitchen
Wash Room
Straw Room
Lodging Room
Short and Long Runs
Shelter
Heat

CHICKEN HOUSE

Laying Hens
Cockerels
Brooder House
Feeding Passage
Feed Room
Killing Room
Cleaning Room
Shipping Room
Egg Room
Incubator Room
Testing Room
Boiler Room
Runs
Shade

DOVE COTE

Tiers of Nests
Inside Screened Area
Feed Room
Killing Room
Cleaning Room
Packing and Shipping
Runs

GREENHOUSE

Plant Room
Potting Room
Shipping Room
Hotbeds
Cold Frames
Garden Tools
Fruit Storage
Sorting Room
Packing Room

MISCELLANEOUS BUILDINGS AND EQUIPMENT

Saw Mill
Well House
Spring House
Wood Shed
Corn Crib
Dipping Vats
Garbage Disposal
Sewage Disposal
Pump House
Acetylene Gas Plant
Tank
Wind Mill
Dam for Waterpower
Hydraulic Room
Ice House
Laundry Building
Slaughter House
Smoke House
Manure Pits
Mulch Pits
Root and Vegetable Cellar
Bee Cellar
Fruit Cellar
Mushroom Cellar
Preserve Cellar
Preserving Room
Fruit Drying Room

Interior of Cow Barn, showing double line of stalls arranged for cows to face one another

Interior of Cow Barn, showing advance registry stalls
Calving pens are similar

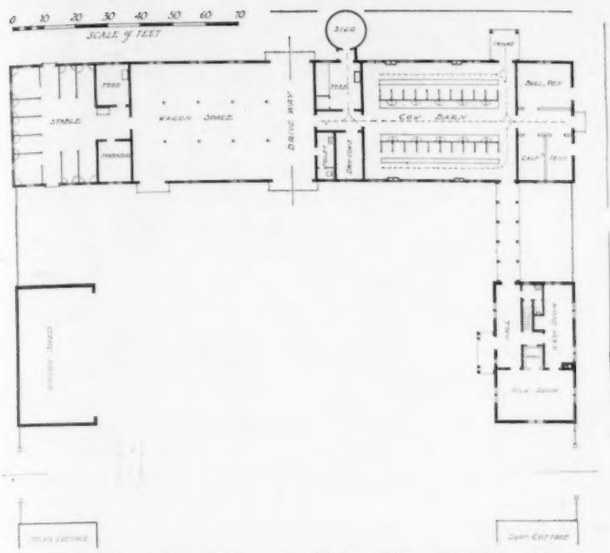
Alfred Hopkins, Architect

VIEW OF FARM BARN SHOWING PASSAGE TO DAIRY

GENERAL VIEW OF FARM BARN FROM COURTYARD

FARM BUILDINGS OF OTTO H. KAHN, ESQ., COLD SPRING HARBOR, LONG ISLAND, N. Y.

DELANO & ALDRICH, ARCHITECTS



First Floor Plan of Farm Buildings of Otto H. Kahn, Esq.

The garage is too often a temporary shed stuck in some handy place giving it undue prominence that spoils many otherwise pleasing groups. In many cases it looks as if all the money had gone for the car and nothing was left for the housing of the silent steed. It is not only more agreeable but more econon ical to have it well housed,— and in a fireproof or fire-resisting building, so separated from other buildings that a fire can be easily confined within it. To this building should be added a room for the motor-driven farm implements, the use of which is increasing each day.

The hay barn is very often combined with the farm stable or the cow barn or with both; but many prefer to have it separate, in which case, on account of its size, it is usually made the central feature of a group. Hay should not be stored above the animals unless the floor is dust tight. The principal necessities for the hay barn are the driveway through the building and the framing to hold the stacks of hay in place. Some arrange this framing to allow the

Unfortunately experts still disagree on many points and the architect will find himself in many difficult positions. The superintendent of the farm will have his fixed ideas on many details and what has proved successful at one farm will be much frowned upon by the superintendent of another. However, does this list not open the eyes of the tyro farmer and make him realize that this is not a problem to be lightly undertaken, and the architect that it is worthy of very serious study?

The stable is fast passing and only those who keep show or saddle horses worry much about this building, for the farm stable is taking its place. As horses are still necessary for the tilling of the soil, and probably will be for many years, much more attention is being paid to it, and the farm horses are now beginning to taste a little of the luxury previously devoted only to the carriage and saddle animals. The requirements are very similar to those for the stable except that the accommodations for farm wagons, machines, etc., are different from those for carriages. Much of this is provided for in sheds. It is quite important that whenever possible, a door on both front and rear be provided so that the wagons may be driven through the barn, obviating the turning and backing of the cumbersome vehicles.

Detail of Silo and Farm Barn of Otto H. Kahn, Esq. Cold Spring Harbor, Long Island, N. Y.
Delano & Aldrich, Architects

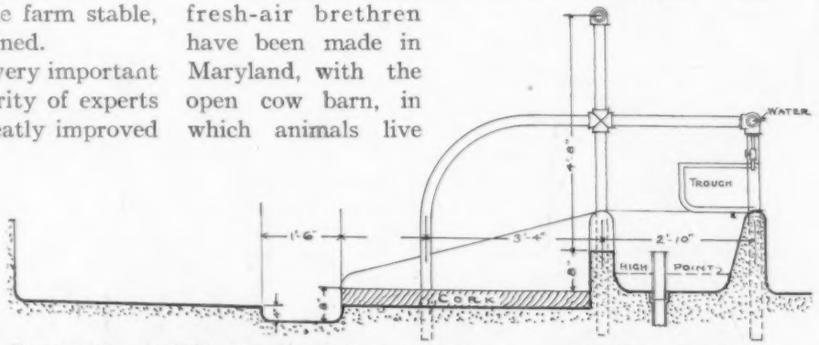
storage of wagons under the hay. It is well to have some ventilation in the loft as hay heats easily. If a large quantity is to be stored, hay tongs and trolley are necessary.

The cow barn is the most important building and is about the only farm building that has been previously discussed to any extent.* It is accepted that it is bad practice to house cows with other animals in the same building without having them well separated, and in many states the dairy regulations prohibit the practice entirely. The buildings for Messrs. Kahn and Brewster at Cold Spring Harbor and Mt. Kisco, respectively, show very good solutions of the problem presented by this combination. A large wagon room with driveway is placed between the horses and cows, and by using the space over the wagon room for the hay and feed, the farm stable, hay barn and cow barn are thus combined.

First Floor Plan of Farm Buildings for J. A. Burden, Esq., Syosset, Long Island

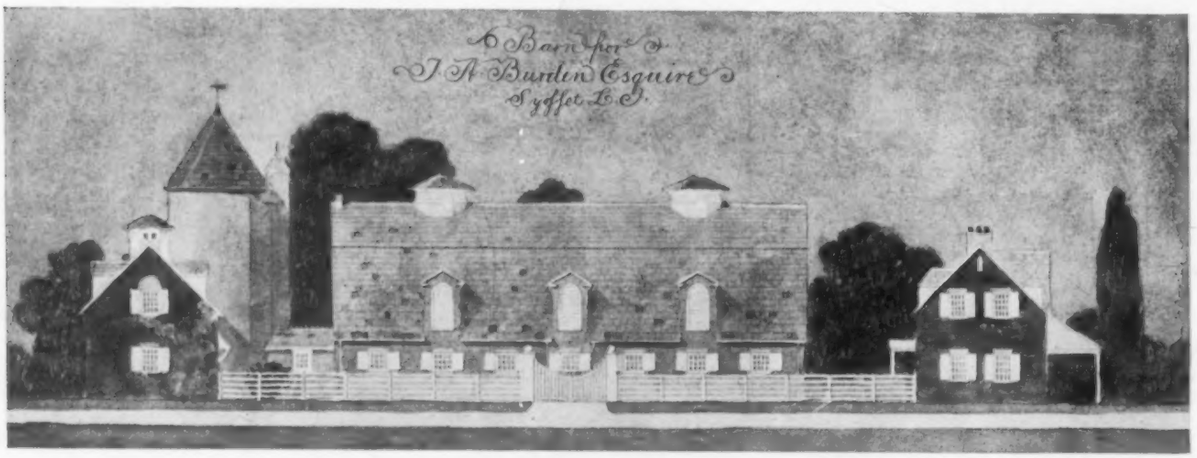
The ventilation of the cow barn is very important and not an easy problem. The majority of experts believe the health of the animal is greatly improved by proper ventilation and many devices have been arranged, probably the most efficient being the King system. In one of the government experimental stations, it was shown that animals confined in a closed stable with absolutely no ventilation still thrived and gained weight, the only difficulty being that of condensation, a difficulty many have experienced, and at first thought was caused by a leak, or moisture, coming through the wall. For this reason at least, all agree it is necessary to have some ventilation. The greater danger is in not having it properly regulated so that a sufficient amount of the animal heat is retained in cold weather to prevent the animals getting chilled. The ventilation in a frame building is not of as great importance as in a masonry one, for there are many leaks through which air may enter. Good sunlight is of greater value in the cow barn than ventilation and should always be sought.

Successful experiments which might appeal to our fresh-air brethren have been made in Maryland, with the open cow barn, in which animals live

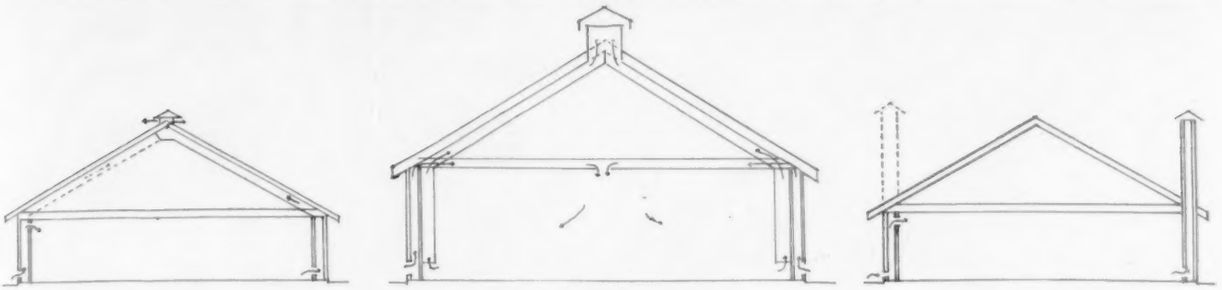


Detail of Cow Stall Showing Pipe Rail Stanchion Frames used for Water Supply to Individual Troughs

*See THE BRICKBUILDER, March, 1914. "Modern Farm Buildings," by Alfred Hopkins.



Elevation of Farm Group for J. A. Burden, Esq., Syosset, Long Island, N. Y.
Delano & Aldrich, Architects



Use of ventilators at peak of roof. Intake and outlet ducts alternate on each side of the building.

Method by which the fresh air enters from ceiling. Allow 60 cubic feet of air per minute for each cow.

One method of installing King system of ventilation. Intake and outlet ducts alternate on each side.

Diagrams Showing Methods of Ventilation for Cow Barn

the year round. The sides are built up to about five feet high, except the one toward the prevailing winter wind where the milk room is placed. The only serious objection to the scheme seems to be the discomfort of the farm hand in cleaning and milking in the freezing temperature, but it should please the "ventilation fiend." The operators are very enthusiastic about it. It requires less labor, and, according to the records, produces better results. The milk room may be heated a little above freezing, provided the cows are not allowed to remain in the room very long.

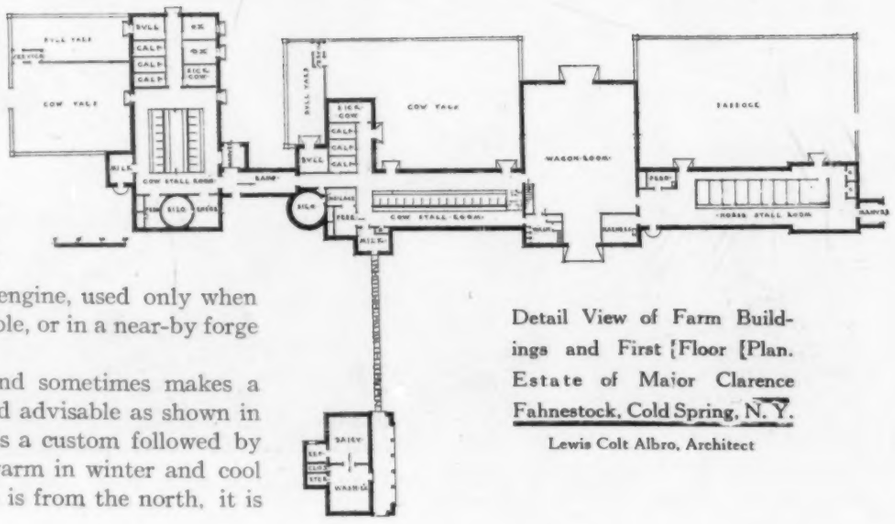
For the health of the animals it is preferable to have the milk cows, dry cows, heifers, calves and bull in different rooms. Whether the cows should face each other or be back to back is a matter of preference. In either case a trolley for manure and feed is of great convenience. The Burden plan shows an attractive method of concealing this unsightly necessity by a pergola through which the trolley passes to the manure shed some 200 feet away. An exercising space should be arranged for the bull. This may be accomplished by tieing the bull to a long pole on a swivel, or by a trolley wire as in the Warburg farm. This latter has the advantage that the bull may go both in and out of doors. If he is to be allowed freedom, the enclosure should be of very substantial construction. A cow yard or exercise lot is important and should be arranged on the warm side of the building. A wind wall is a good addition to the yard, and greatly adds to the appearance. There should also be some shelter and a watering trough. A portion of the yard arranged as a concrete feeding floor is of great economic value. It consists only of a concrete floor, prevents the fodder from being trampled into the earth and saves all manure.

The silo fortunately has come to stay. Fortunate not only for its value as a container for ensilage, but as a decided asset to the design of the groups. In most of the illustrations one may be seen and in each case the grouping would suffer with its absence. It is not necessary, however, to separate it from the main building; it may be inside if desired. The use of a silo increases the value of the corn crop about thirty

Silo and Granaries, Farm Group at Glen Isle, Chester County, Pa.
Wilson, Eyre & McIlvaine, Architects

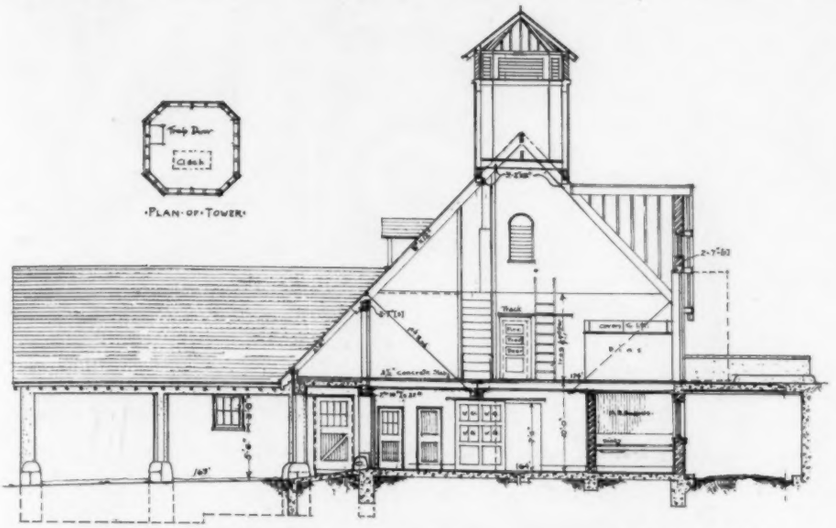
per cent. The height is usually about two and one-half to three times its diameter. The floor should be of concrete and connected to a drain. On account of the odor of the ensilage, it is advisable to have the silo separated from the building or feed room by an anteroom. The engine, used only when filling the silo, may be portable, or in a near-by forge or shop room.

The contour of the ground sometimes makes a "bank barn" economical and advisable as shown in the barn at Mt. Kisco, and is a custom followed by many farmers, as they are warm in winter and cool in summer. If the approach is from the north, it is

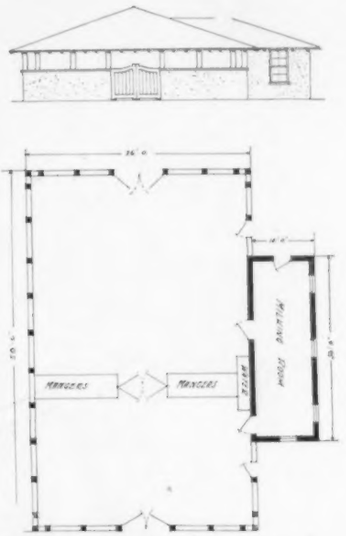


Detail View of Farm Buildings and First Floor Plan. Estate of Major Clarence Fahnestock, Cold Spring, N. Y.

Lewis Colt Albro, Architect



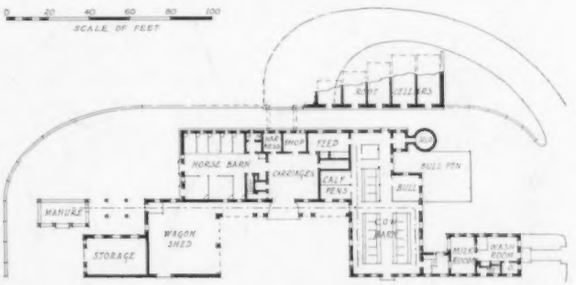
Cross Section through Farm Barn at Mt. Kisco Showing Bridge to Bank Method of Framing and Large Hay Storage Space.
Benjamin Wistar Morris, Architect



Plan and Elevation of Open-air Cow Barn at Maryland Agricultural Experiment Station.

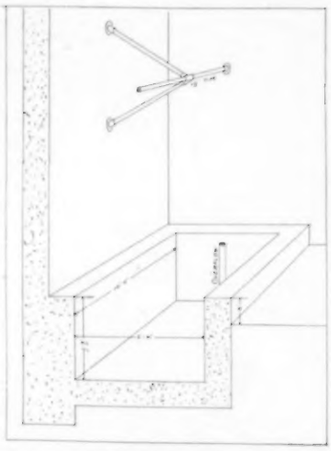
just as well to have the inclined drive against the wall, otherwise it is preferable to have the building set back from the bank and connected to it by a bridge, the space under which will allow of better ventilation in the basement and makes a good temporary shelter. In the former case, the space under the run would make a good root, vegetable or mushroom cellar. In the barn at Mt. Kisco a particularly good working arrangement has been secured in its plan. The silo, and root cellar, which has been built into the bank extending as far as a rock formation permits, adjoin the feed room. Here the roots are ground and a direct line for the feed leads to the aisle between the cows. A similarly direct line is provided for the manure trolley. At the other end of the barn, on the second floor, sleeping rooms are provided for the men, and due to the height of the roof, hay storage space is afforded over them. A small balcony adjoining the men's rooms furnishes a comfortable spot for summer evenings.

The dairy, called by some "the factory of the farm," is where sanitary arrangements count for more than anything else. Milk is so easily tainted by odors, it is important to have the dairy disconnected in



First Floor Plan of Farm Barn at Mt. Kisco, N. Y.

View of Bank Side of Farm Barn, Estate of J. C. Baldwin, Jr., Esq., Mt. Kisco, N. Y.
Benjamin Wistar Morris, Architect



Cooling Tank for Milk, Showing Pipe Rail to Assist in Raising Cans of Milk

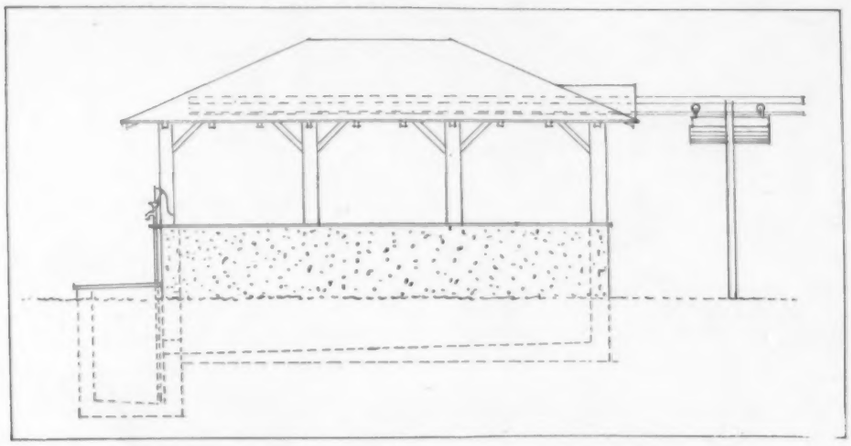


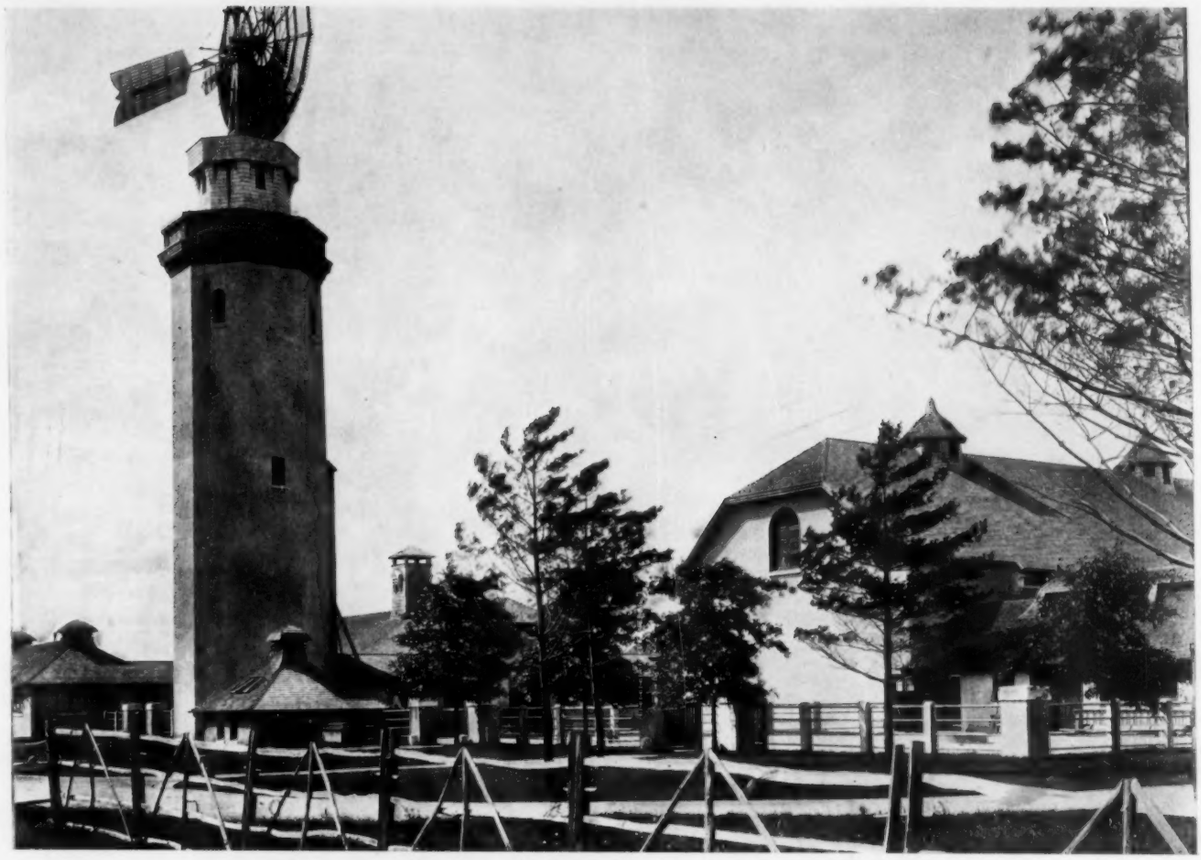
Diagram of Manure Shed, Showing Conveyor, Urine Pit and Pump
Details by Elisha Harris Janes, Architect

some way from the barn, even if only by an open air passage or loggia, as shown in the Warburg group. Many states have regulations stating the distance the dairy should be from other buildings. The arrangement of the rooms is of little importance if convenient. This building should have heat, hot water, and, if possible, live steam for washing the cans. A porch off the wash room where the cans may be dried in the sun is useful if it faces the south. The refrigerator is more practical if filled from the outside. In many places you may still find the old method of keeping the milk cool by standing the cans in water troughs or in the well, especially when it is difficult to obtain ice. It is a good method of cooling if there is sufficient running or spring water to keep a low temperature. In this case, a trough is built of concrete deep enough in which to set large milk cans, and provided with an overflow pipe similar to the diagram shown herewith.

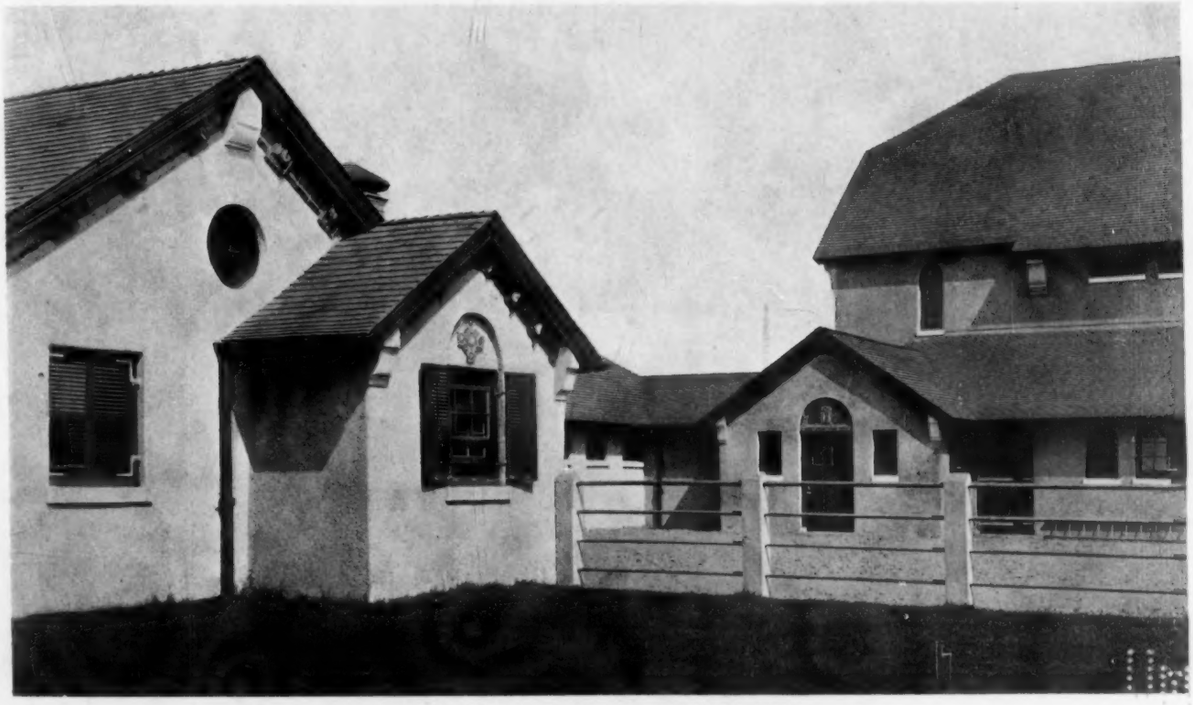
An economy practiced by some practical farmers is to have the skimmed milk from the separator run directly to the cow troughs for the cows. An owner of a large farm in Delhi, N. Y., claims he has made a saving of twenty per cent in the keep of his cows through this method. If it is to be wasted, special arrangements should be made in the disposal plant, because sour milk is apt to give trouble if allowed to run with the other sewage.

(To be continued)

General View of Farm Buildings of Effingham Lawrence, Esq., Cold Spring, N. Y. Group at Right Comprising Dog Kennels and Farmer's Cottage, designed by Alfred Hopkins. Farm Barn in Center and Wagon Shed at Left Designed by Foster, Gade & Graham



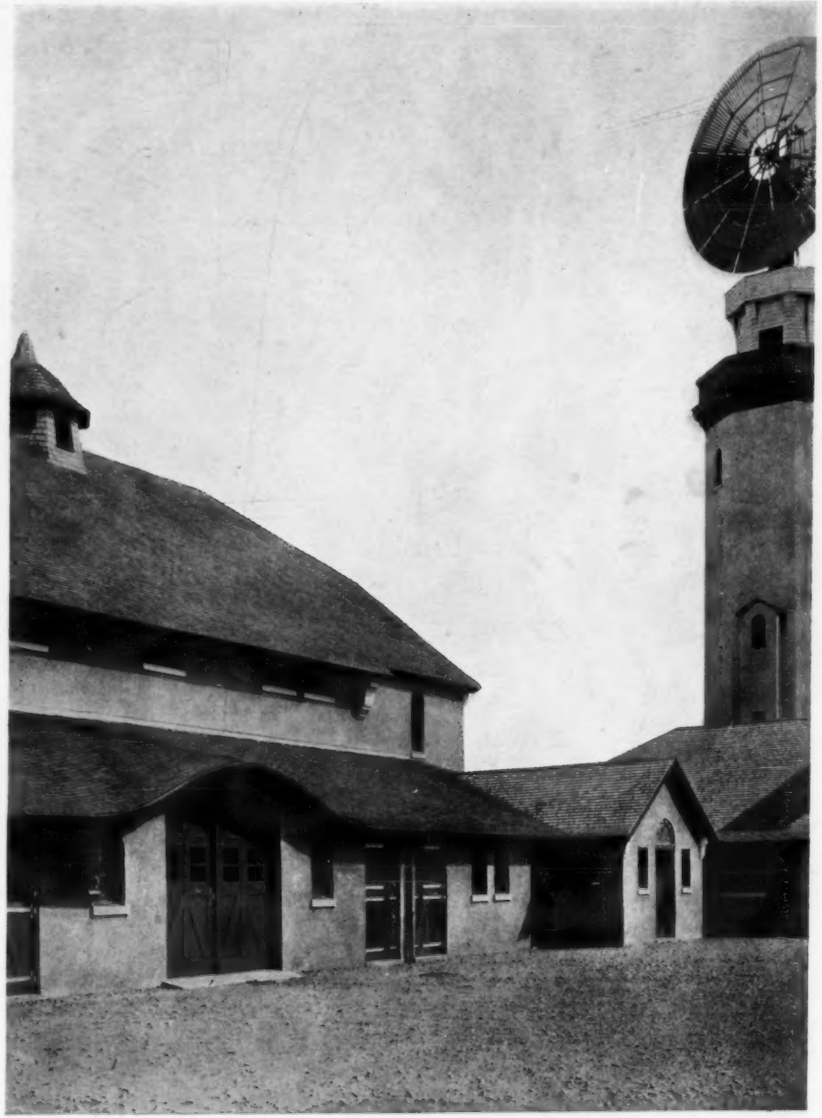
GENERAL VIEW SHOWING SILO AND WATER TANK ADJOINING COW STABLES



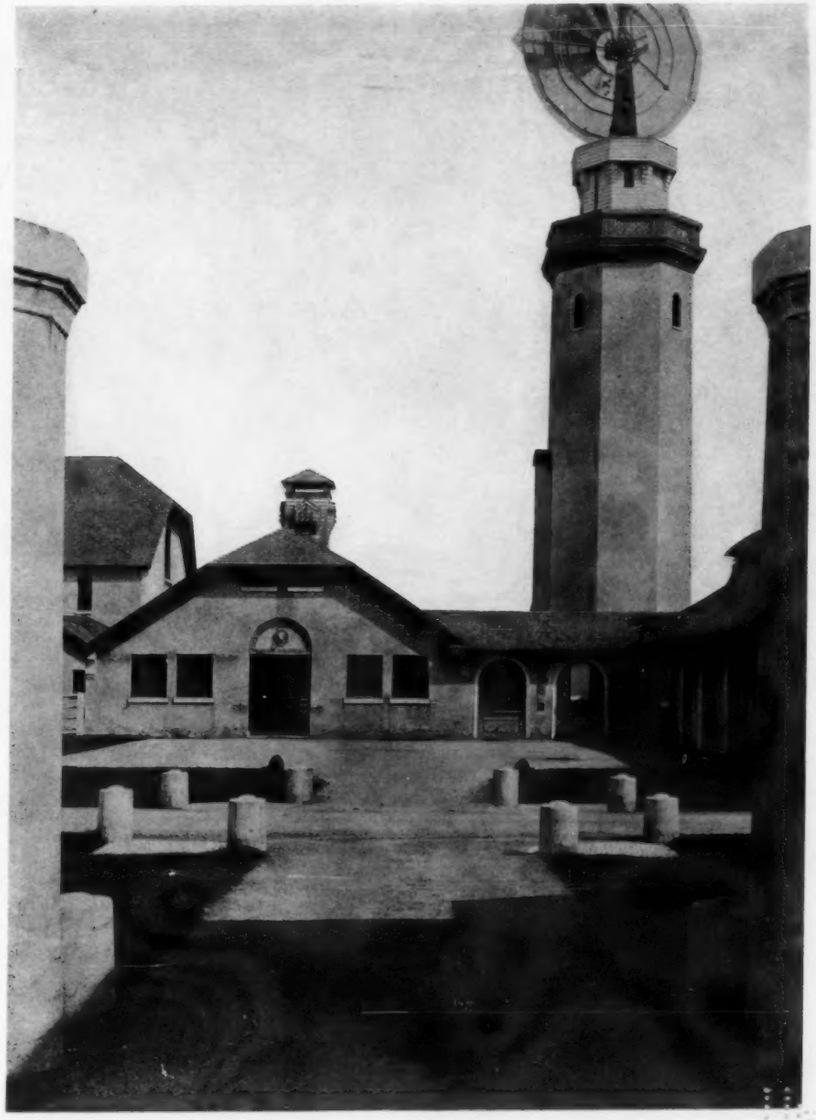
DETAIL VIEW OF DAIRY AND FARM BARN

ESTATE OF COMMODORE FRED BOURNE, OAKDALE, LONG ISLAND, N. Y.

ALFRED HOPKINS, ARCHITECT



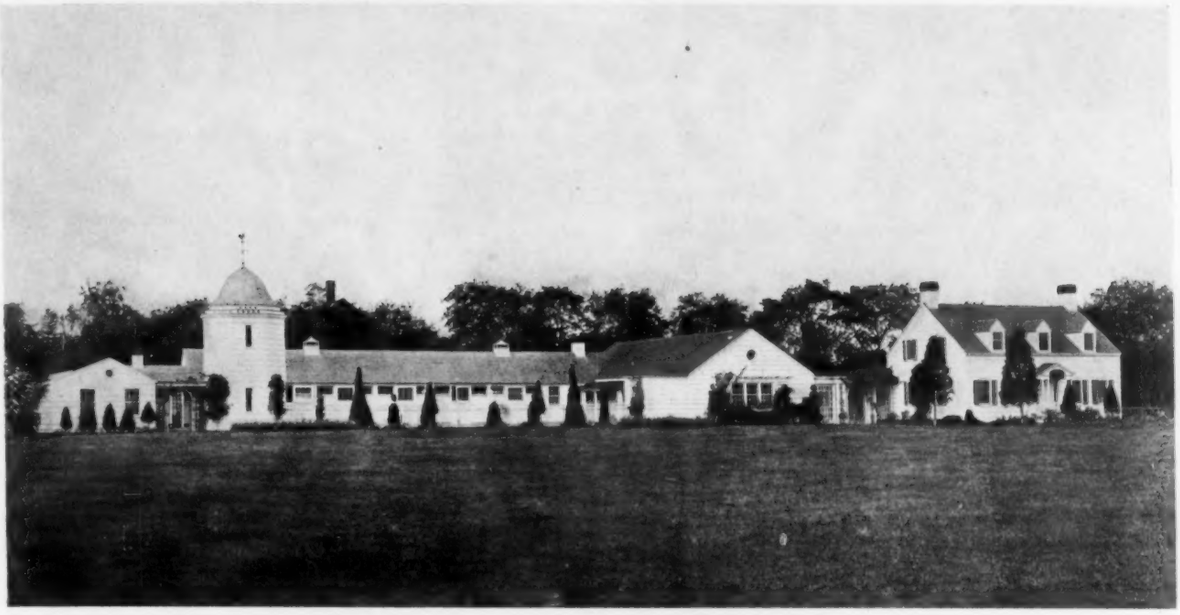
FARM YARD SIDE OF STABLE



VIEW OF COW BARN FROM ENTRANCE GATE

ESTATE OF COMMODORE FRED BOURNE, OAKDALE, LONG ISLAND, N. Y.

ALFRED HOPKINS, ARCHITECT

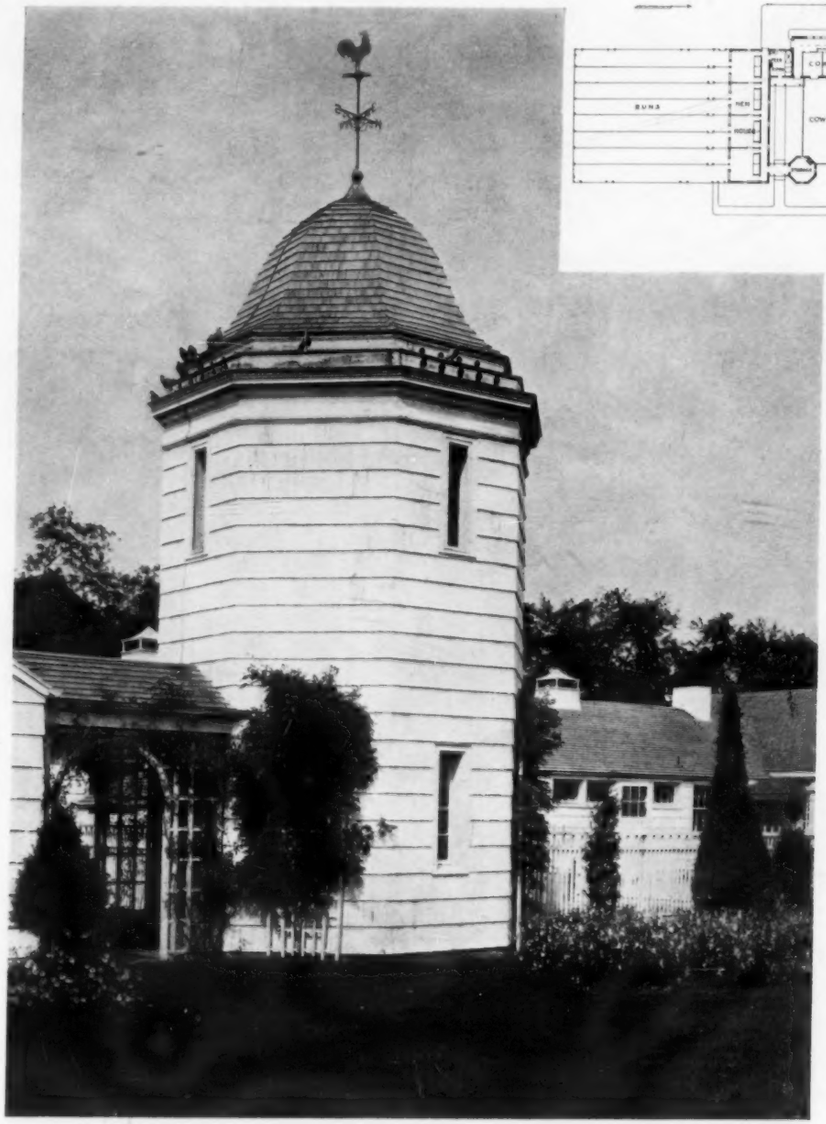


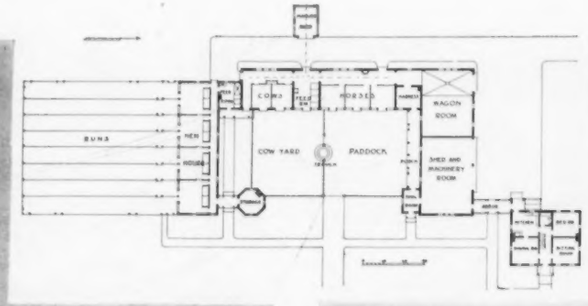
GENERAL VIEW OF FARM BUILDINGS FROM THE EAST

FRONT VIEW OF FARMER'S COTTAGE

ESTATE OF ADOLPH MOLLENHAUER, ESQ., BAYSHORE, LONG ISLAND, N. Y.

ALFRED HOPKINS, ARCHITECT



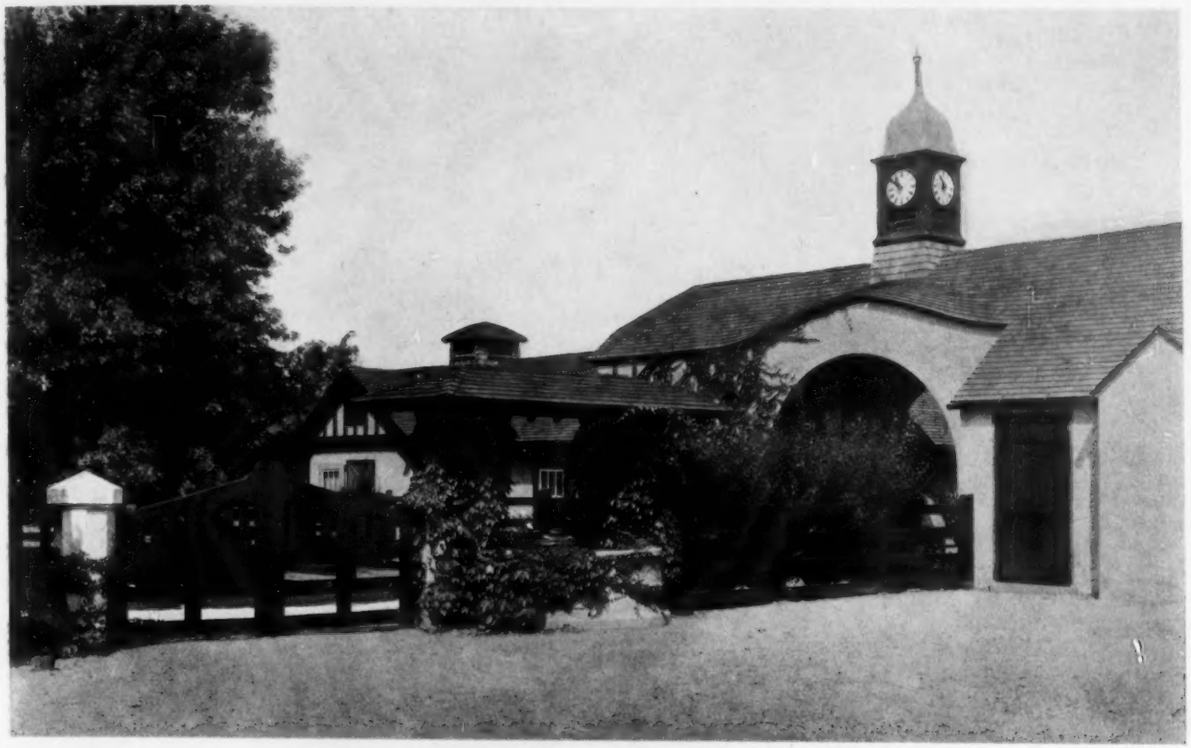


STORAGE TOWER AND PIGEON COTE

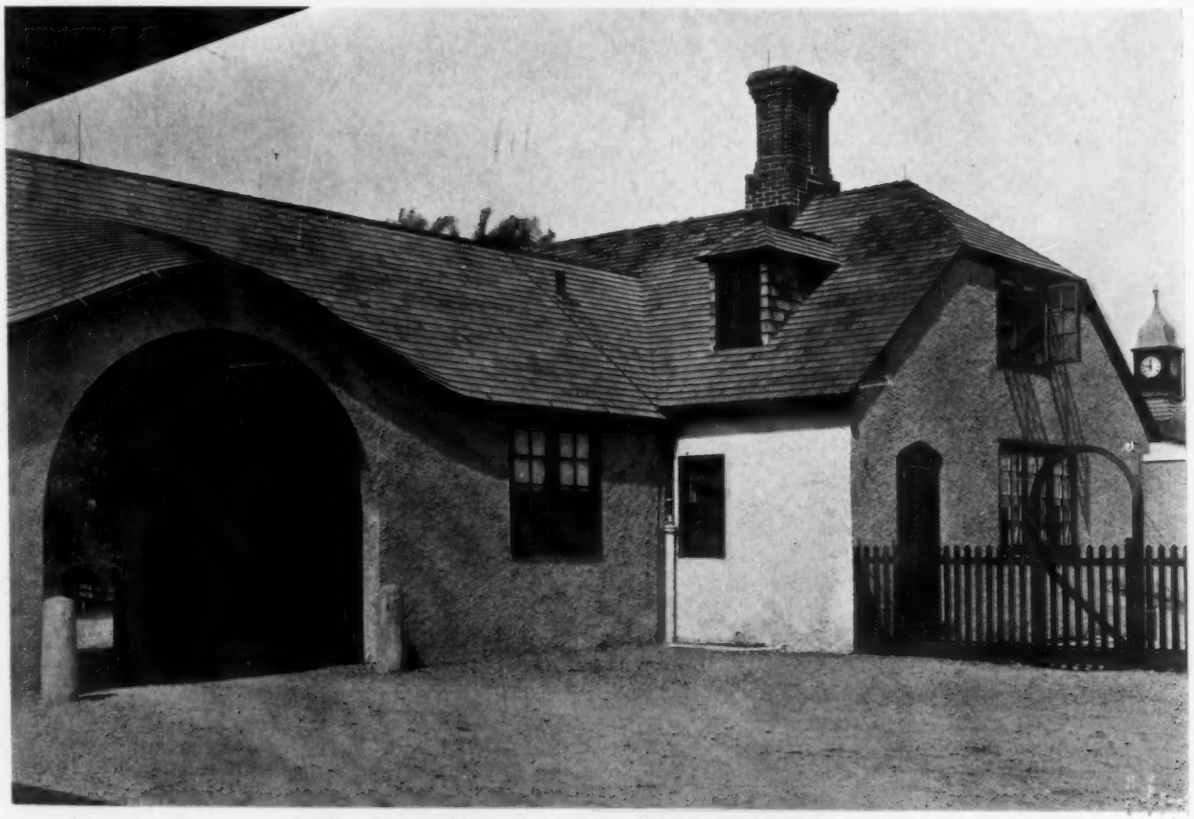
DETAIL OF FARMER'S COTTAGE

ESTATE OF ADOLPH MOLLENHAUER, ESQ., BAYSHORE, LONG ISLAND, N. Y.

ALFRED HOPKINS, ARCHITECT



VIEW LOOKING FROM PADDOCK TOWARD ENTRANCE DRIVEWAY



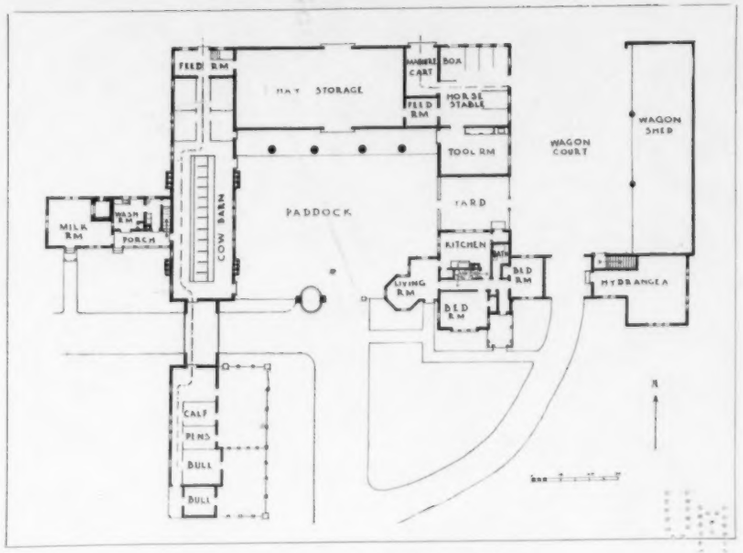
VIEW IN WAGON COURT LOOKING TOWARD HERDSMAN'S HOUSE

FARM BUILDINGS OF MORTIMER L. SCHIFF, ESQ., OYSTER BAY, LONG ISLAND, N. Y

ALFRED HOPKINS, ARCHITECT

DETAIL OF HERDSMAN'S HOUSE

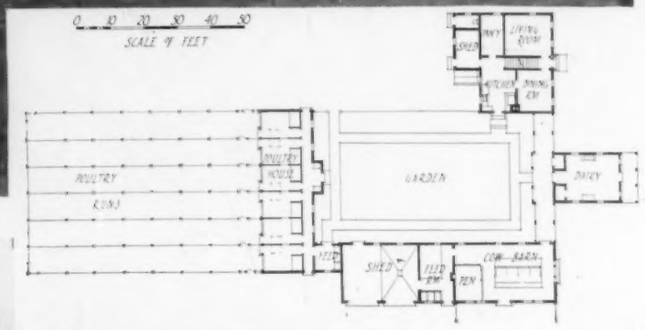
GENERAL VIEW FROM THE NORTH



FIRST FLOOR PLAN OF GROUP

FARM BUILDINGS OF MORTIMER L. SCHIFF, ESQ., OYSTER BAY, LONG ISLAND, N. Y.

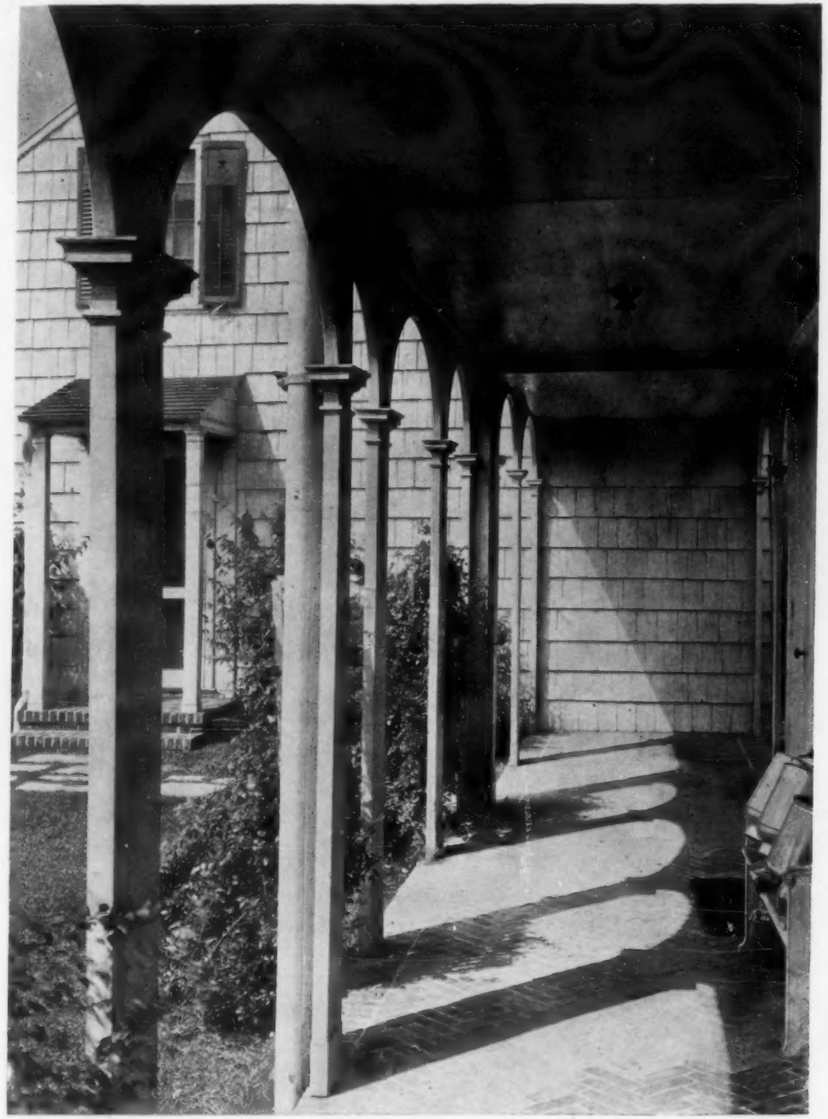
ALFRED HOPKINS, ARCHITECT



VIEWS OF FARMER'S COTTAGE AND DAIRY AND PLAN OF GROUP

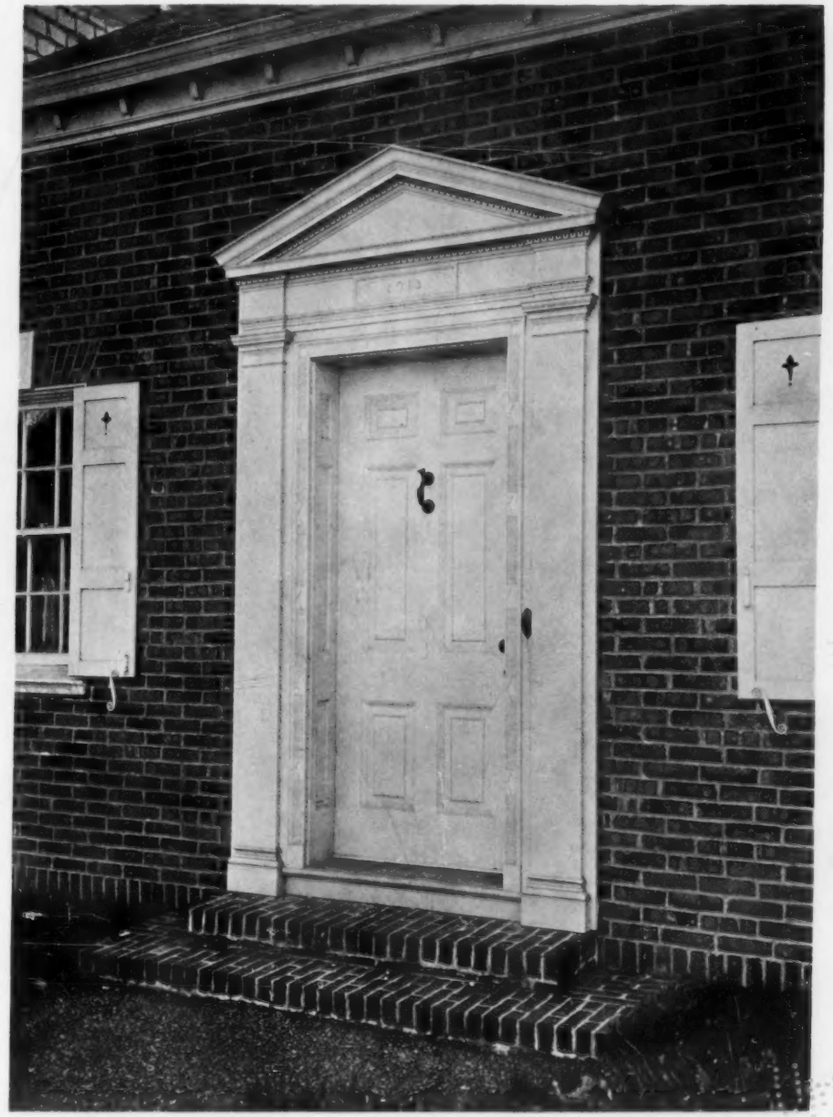
FARM BUILDINGS OF ANSON W. BURCHARD, ESQ., LOCUST VALLEY, LONG ISLAND, N. Y.

ALFRED HOPKINS, ARCHITECT



PORCH CONNECTING DAIRY TO FARMER'S COTTAGE

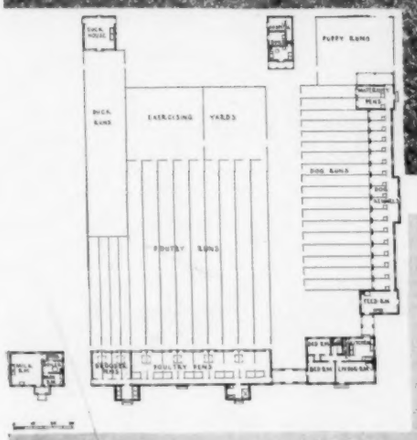
ESTATE OF ANSON W. BURCHARD, ESQ., LOCUST VALLEY, L. I.

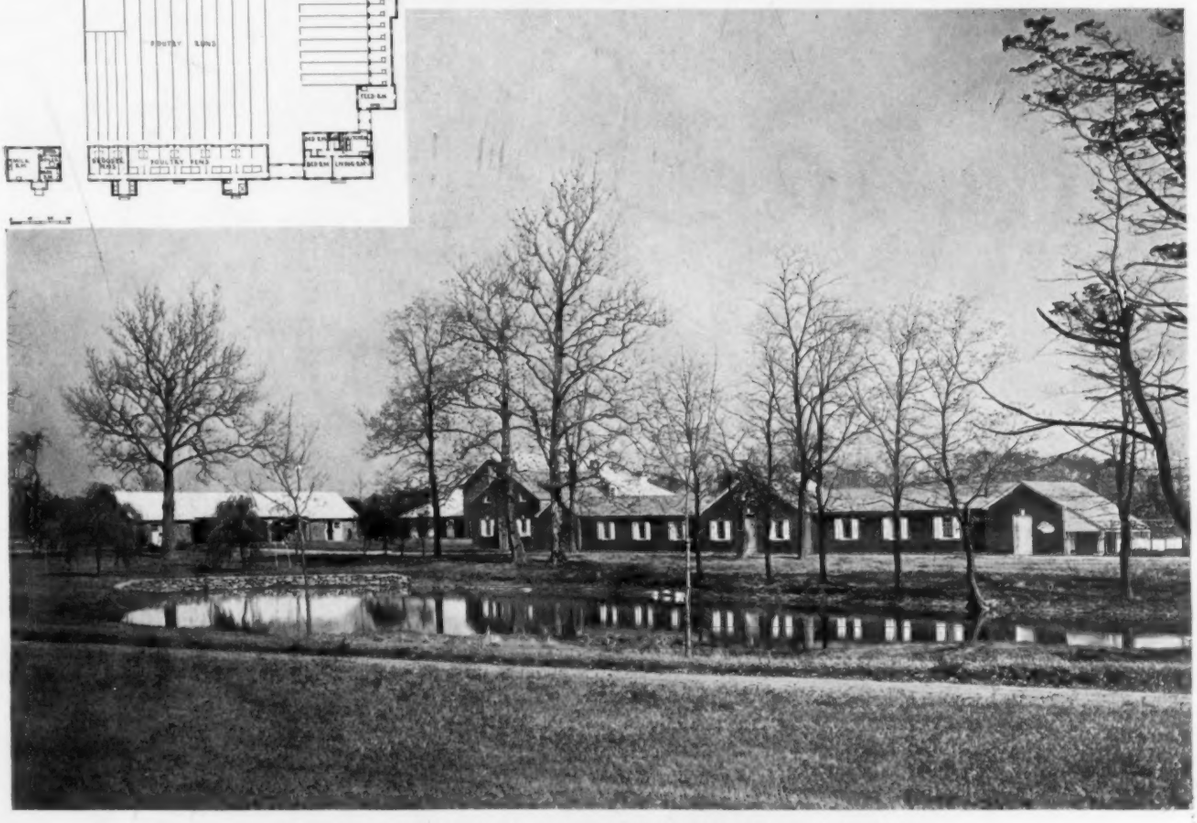


DOORWAY TO FARMER'S COTTAGE

ESTATE OF EFFINGHAM LAWRENCE, ESQ., COLD SPRINGS, N. Y.

ALFRED HOPKINS, ARCHITECT

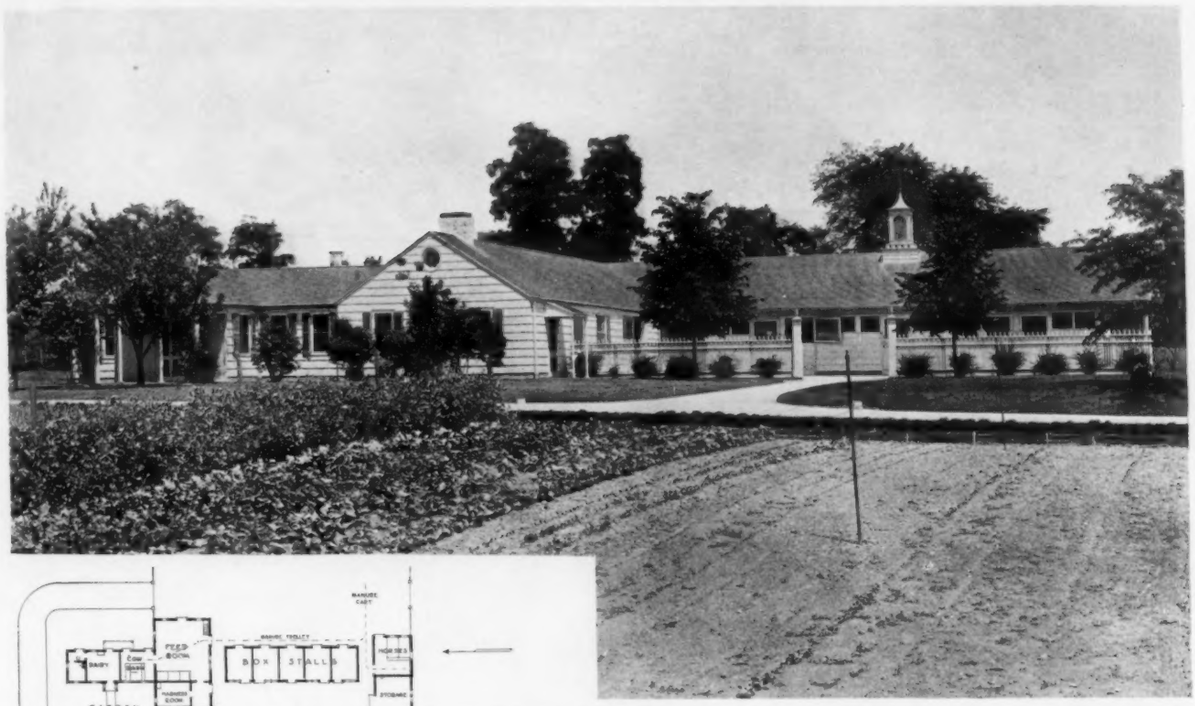


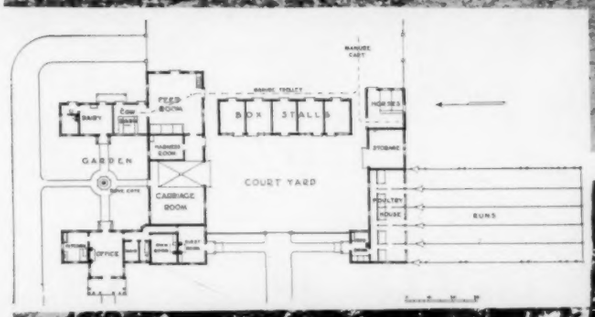


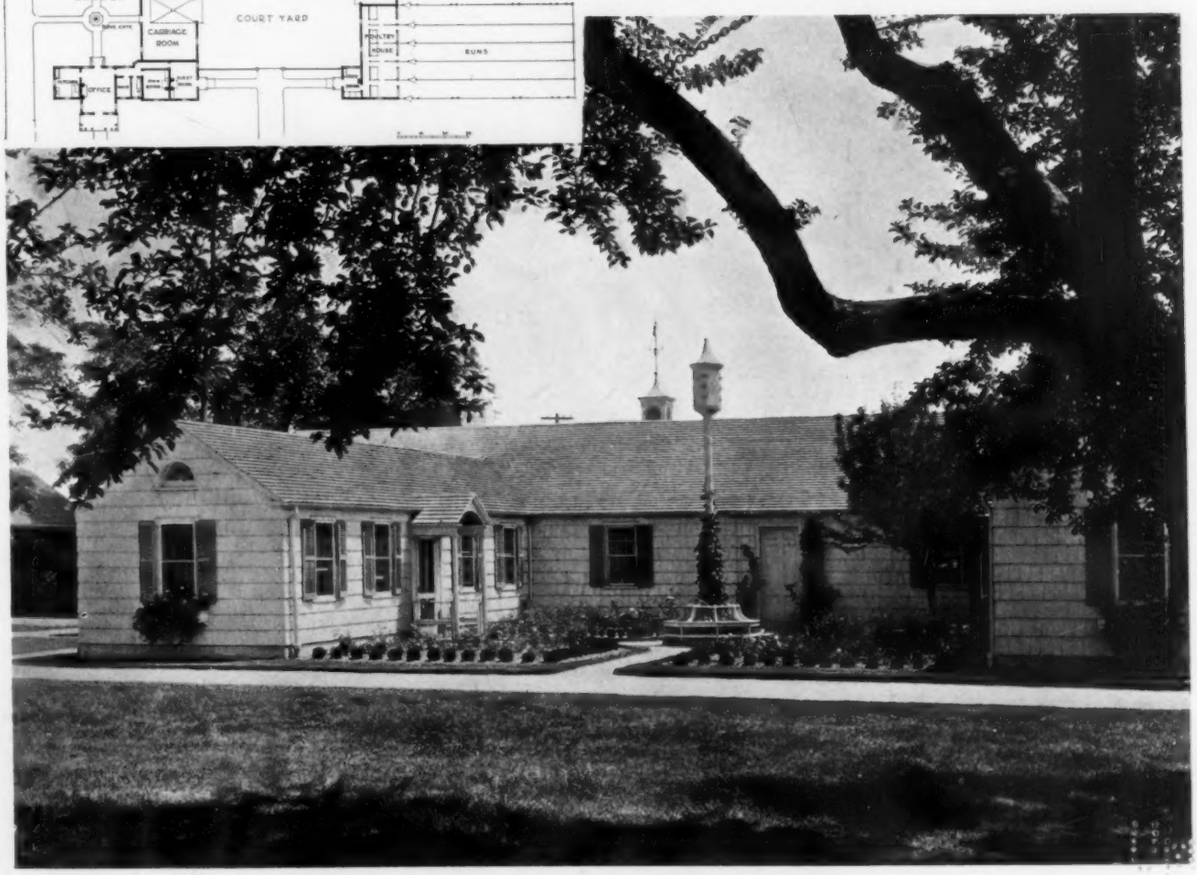
VIEWS OF POULTRY AND KENNEL GROUP WITH FARMER'S COTTAGE

FARM BUILDINGS OF EFFINGHAM LAWRENCE, ESQ., COLD SPRINGS, N. Y.

ALFRED HOPKINS, ARCHITECT



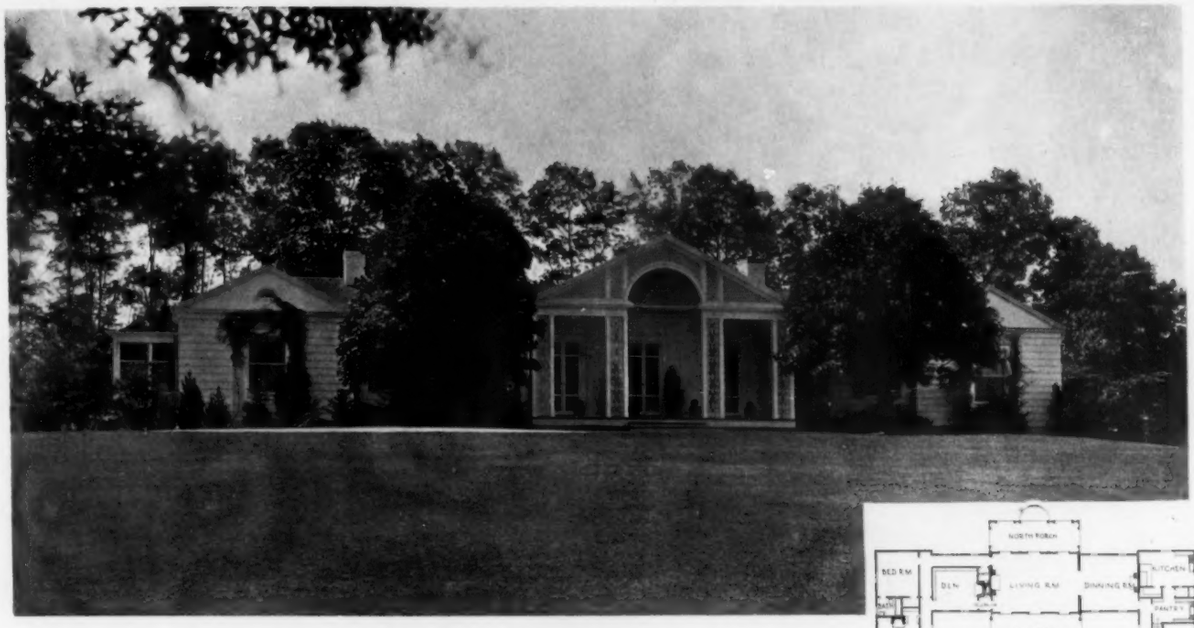


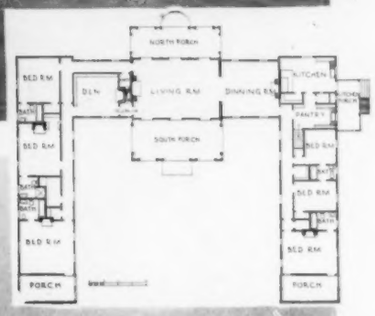


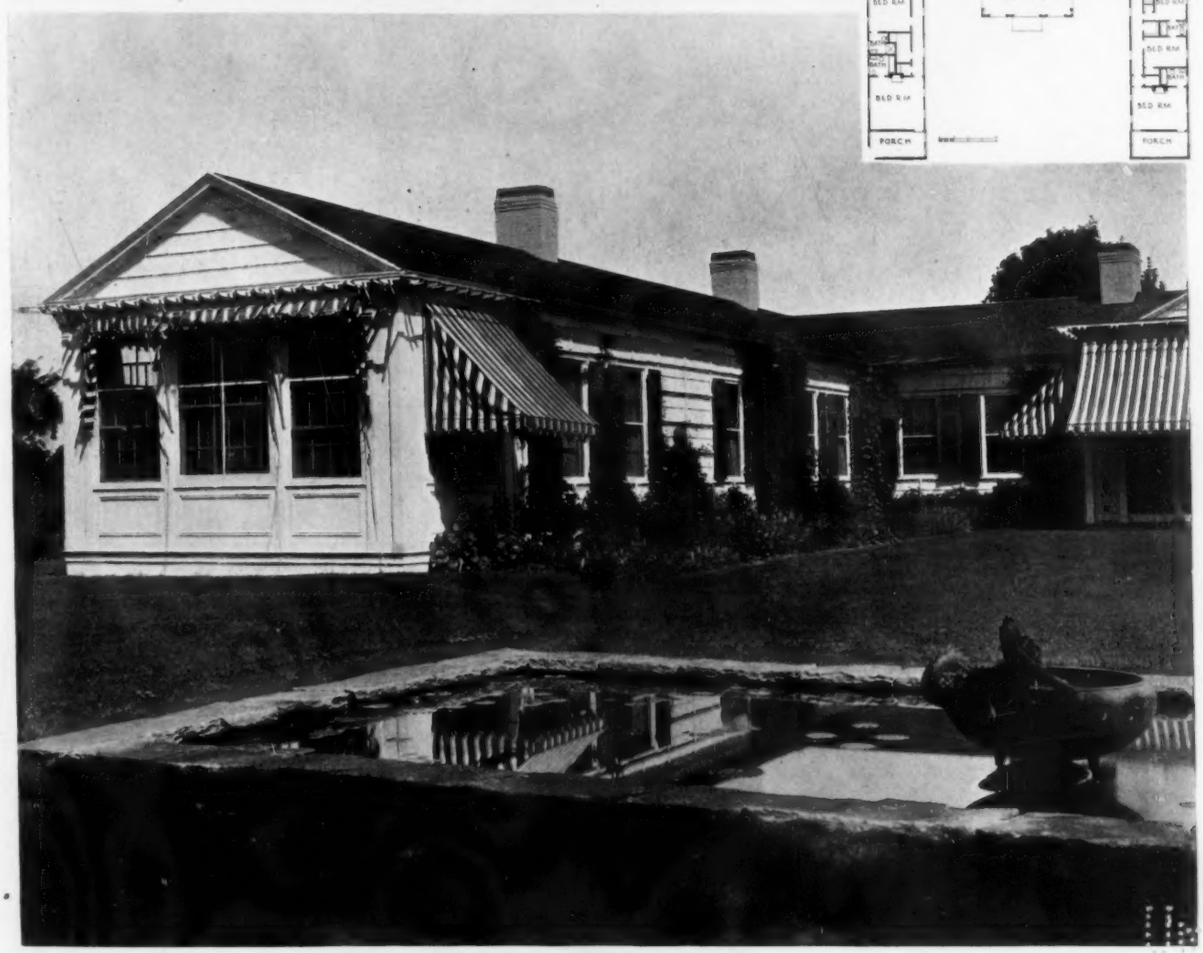
VIEW OF NORTH COURT BELOW AND WEST COURT ABOVE

FARM BUILDINGS OF GLENN STEWART, ESQ., LOCUST VALLEY, LONG ISLAND, N. Y.

ALFRED HOPKINS, ARCHITECT



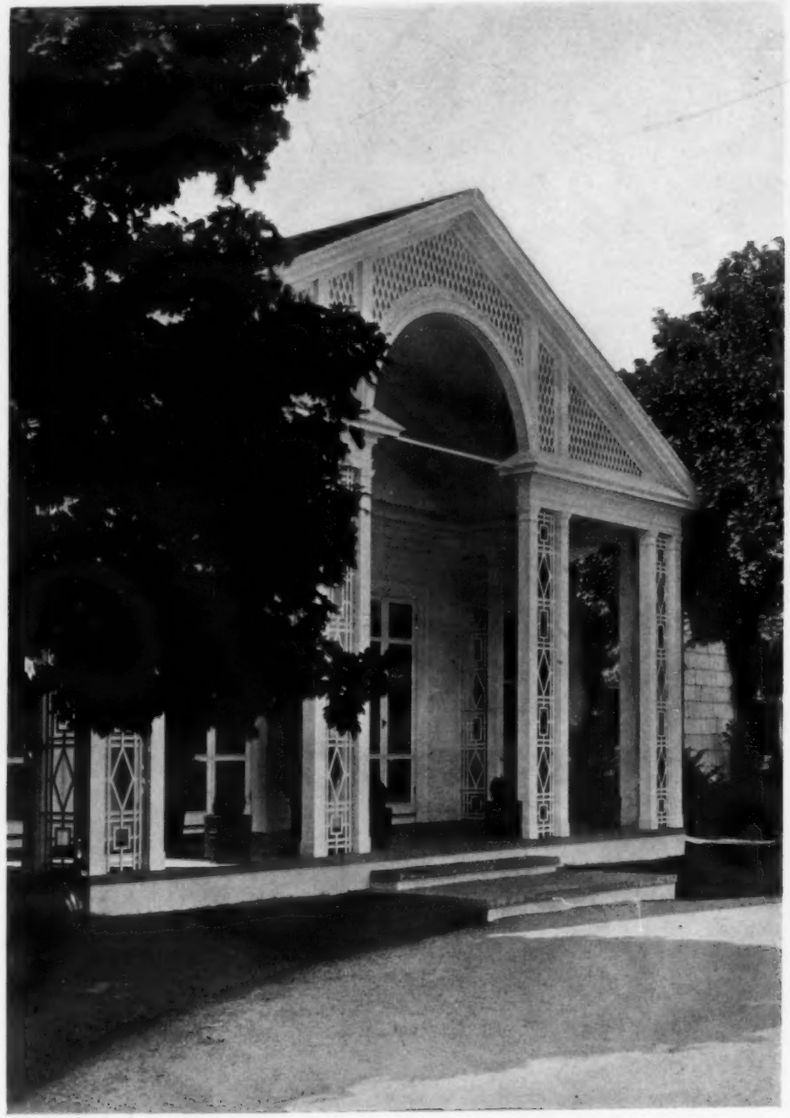




ENTRANCE FRONT ABOVE AND SOUTH COURT BELOW

HOUSE OF GLENN STEWART, ESQ., LOCUST VALLEY, LONG ISLAND, N. Y.

ALFRED HOPKINS, ARCHITECT



DETAIL OF NORTH OR ENTRANCE PORCH

GENERAL VIEW OF SOUTH FRONT

SUPERINTENDENT'S COTTAGE

HOUSE AND FARM BUILDINGS OF GLENN STEWART, ESQ., LOCUST VALLEY, LONG ISLAND, N. Y.

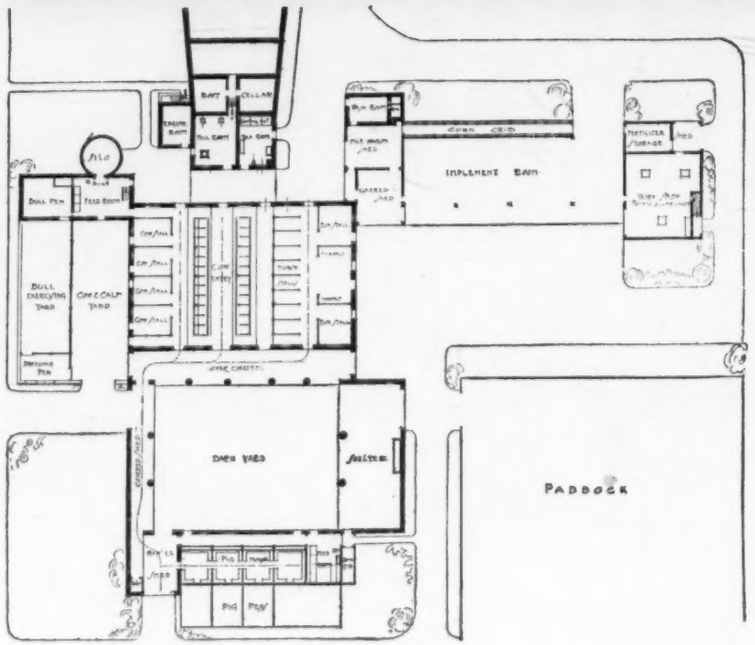
ALFRED HOPKINS, ARCHITECT

GENERAL VIEW FROM APPROACH

VIEW OF FARM GROUP FROM HIGH GROUND AT REAR

FARM BUILDINGS, ESTATE OF J. C. BALDWIN, JR., ESQ., MT. KISCO, N. Y.

BENJAMIN WISTAR MORRIS, ARCHITECT



PLAN AND GENERAL VIEWS

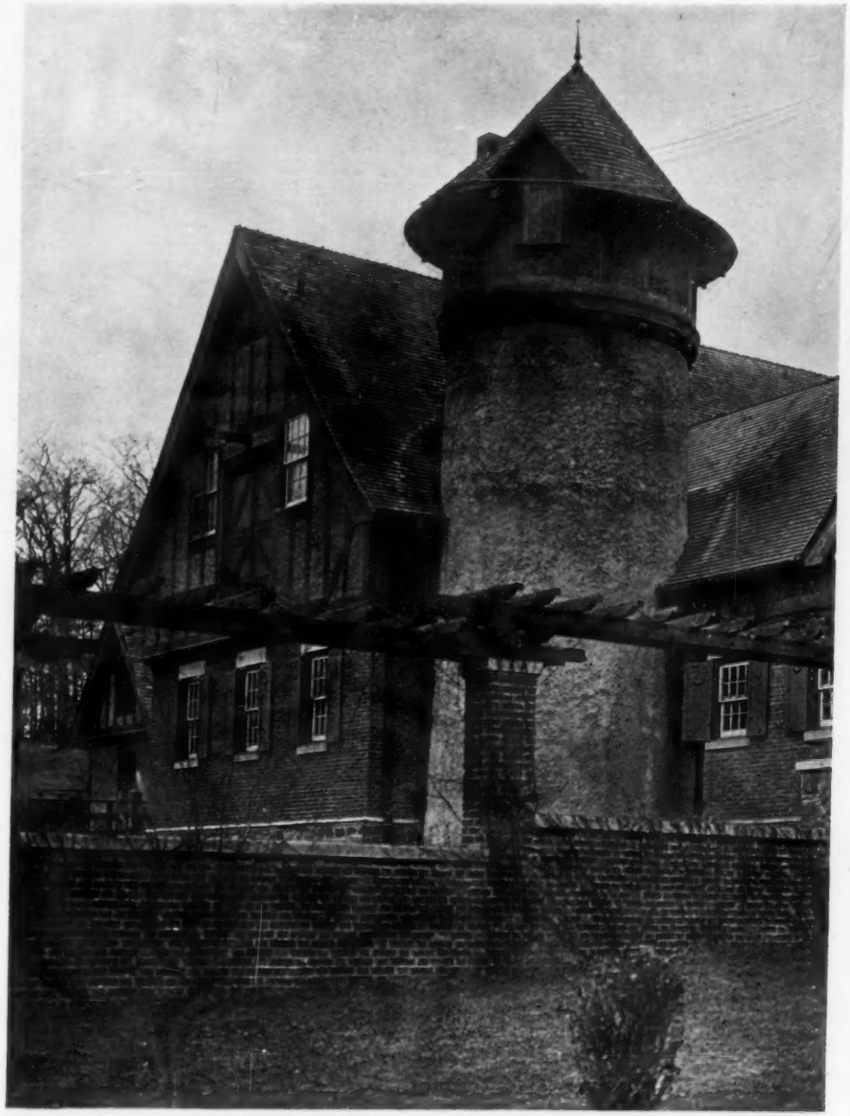
FARM BUILDINGS OF MESSRS. L. AND R. W. JOHNSON, CROYDEN, PA.

DUHRING, OKIE & ZIEGLER, ARCHITECTS

GENERAL VIEWS OF ENTRANCE SIDE

FARM BUILDINGS OF FELIX M. WARBURG, ESQ., WHITE PLAINS, N. Y.

ELISHA HARRIS JANES, ARCHITECT



DETAIL OF FARM STABLE AND SILO

VIEW OF ENTRANCE COURTYARD

FEED HOUSE OF POULTRY GROUP

FARM BUILDINGS OF FELIX WARBURG, ESQ., WHITE PLAINS, N. Y.

ELISHA HARRIS JANES, ARCHITECT

Some Recent Farm Buildings

FROM THE DESIGNS OF ALFRED HOPKINS, ARCHITECT

Illustrated in the Plates

ESTATE OF ADOLPH MOLLENHAUER, ESQ., BAY SHORE, L. I. This is a small group of buildings on a gentleman's private estate intended to provide for three horses and two cows, all in box stalls. The box stalls for the cows differ a little from the usual type in that they have a combination manger equipped with stanchions. The feed room comes between the cow barn and the horse stable, and the necessities of the situation demanded that the manure shed be put to the east behind the buildings. In order to do away with the necessity of opening an east door in the winter into either one of the compartments for the animals, a trolley was run through the feed room, this acting as a vestibule.

The chicken houses were incorporated in the group of farm buildings, which is only advisable where a few animals are to be provided for. The chicken house is always best located when away from the large group of buildings, but here the conditions were such that it could be easily incorporated. Not only the conditions of the buildings themselves made this necessary, but those of the site which was restricted, and made the grouping together of all the live stock imperative. The chicken house has the customary exposure, with its runs facing south.

The buildings are grouped around a court which is used for the animals, the working entrance being from the rear and north. The farmer's cottage stands in front of the main building and to one side, and is joined to the group by an arbor which is now well grown over with the planting. A large shed and machinery room have been provided for general storage space, together with the usual wagon room for vehicles in service, and a harness room.

On the other side of the buildings a tower has been incorporated, primarily for pigeons, but the second story is used as an extra man's room in summer.

The buildings have been designed in the style of the Long Island farm buildings, and it was intended to make the tower reminiscent of some of the old windmills which may still be seen in West Hampton and Southampton.

The planting of the property, characterized chiefly by evergreens in front of the buildings, is not in accordance with the architect's recommendations or in conformity with the type of landscape work he considers best suited to the architecture.

RESIDENCE AND FARM BUILDINGS OF GLENN STEWART, ESQ., LOCUST VALLEY, L. I. These buildings were designed for a somewhat restricted piece of property. The main roadway to the house goes directly in front of the farm barns so that it was necessary to design them in a fitting manner.

The farm buildings contain accommodations for two cows, five riding horses in box stalls, and a team of two horses. A poultry house was planned, but this wing was never built. Added to this is a small dairy and a living apartment which has proven very attractive and serviceable. This includes a kitchen, a large living room or office, which, while it contains a desk and files, is really fitted up as a living room and used as such. The second story has two comfortable bedrooms and bath, and a room for a maid.

The dairy and cow barn were incorporated in a smaller wing which formed a court garden and though this has a northerly exposure, there has never been any difficulty in making the garden grow to everybody's satisfaction.

A good sized feed room was included, in which all feed is kept. Hay is stored in bales, always an economical method, so far as the building is concerned, and it is unfortunate that the value of baled hay is not more generally known and appreciated. Baled hay will not burn, so the fire risk is immediately reduced and it is usually much cheaper to bale hay than it is to build a barn of the increased size necessary to store it in bulk. Usually three times as much baled hay can be stored in the same area as loose hay. Baled hay is always particularly useful in the smaller problem.

The residence, all the rooms of which are on one floor, was built at the south end of the property with a large court facing the south. This has not yet been properly planted and much of its effectiveness is thereby lost. The guest's bedroom and sleeping porch were placed at the south end of the service wing to correspond to the owner's bedroom and sleeping porch on the other wing.

ESTATE OF MORTIMER L. SCHIFF, ESQ., OYSTER BAY, L. I. The views shown are of a structure built on the old foundations of a previous one destroyed by fire. The calf pen barn built across the roadway is an extension added to the original group to obtain greater accommodation. The plan provides for twelve milking cows and four box stalls, with a small feed room at the end, the main feed storage being in the hay barn. On the other side of the group have been provided six horse stalls and a box stall with the feed room. A place has been provided with a manure cart in a manner which is not always to be recommended. The manure cart ought to be taken outside of the building but it was the owner's wish to have it placed out of sight, and his buildings are kept so clean that it has not proven an objection.

Detail of Drinking Trough, Farm Buildings of Commodore Fred Bourne, Oakdale, Long Island

In this wing have been provided, also, the living quarters for the herdsman and in connection a place for the storage of hydrangeas for the winter, a very desirable feature on a large place. This is conveniently located to be heated from the herdsman's house.

Ample shed room has been arranged. It is impossible to overestimate the value of plenty of shed room. Very few farms ever find they have too much.

Estate of Anson W. Burchard, Esq., Locust Valley, L. I. These buildings show another plan where the poultry house has been incorporated in the rest of the scheme to advantage. The problem was a simple one calling for a gardener's cottage, a dairy, a cow barn containing four stalls and a box stall, hay storage and shed, together with a poultry house.

The farm is a small one, in fact the actual farming consists chiefly of work in the garden. Only one horse is necessary and his quarters are in the stable for hunting horses built near by.

The dairy is located so that it gets its heat and hot water from the farmer's house. The court formed by the buildings has never been properly planted, but makes a very convenient farmer's back yard. The live stock are all under easy control and convenient to the farmer's quarters.

Dog Kennels and Poultry House of Effingham Lawrence, Esq., Cold Spring, N. Y. While these buildings are somewhat extended in plan, they follow out the simplest possible principles. In the chicken house have been provided nine pens for laying hens and four pens for the brooders. The two bays thrown out at the back of the building which faces the main courtyard have been used for feed rooms. The runs occupy the usual position to the south, all fencing being of the iron post and wire type which has proven very satisfactory from every point of view.

The dog kennels consist of one long, well ventilated building containing eighteen pens and a feed room.

All the pens have cork brick floors and the partitions are of concrete for cleanliness. All the windows opening out into the yards are fitted with transoms, and these transoms operate by a worm gear so that all may be opened together. In this way the building has perfect ventilation, and this method has proven entirely satisfactory.

The buildings are of brick, which, however, is only a veneer. This method of building in brick is not only the least expensive, but the best, especially for the low type of farm buildings, such as these buildings are.

At the end of the alleyway between the dog runs and the chicken runs has been located the dogs' hospital, for which, however, there has been very little use. Still such a building is always very desirable, and when it is needed it is needed badly.

Estate of Commodore Fred Bourne, Oakdale, L. I. These farm buildings are on a large estate near Sayville, L. I. They comprise accommodations for approximately thirty milking cows, the corresponding amount of dry stock and young stock, fourteen horses with commodious accommodations in the way of wagon room, sheds, hay storage, machine sheds, tool sheds, blacksmith shop, etc. In this group have also been combined a rather extensive chicken plant with accommodations for the chicken man. There is also a large dairy, and the silo and water tank have been incorporated in a tower of considerable height. All the walls are of terra cotta hollow tile, all shed walls and the walls of the horse stable being filled four feet high with concrete, always necessary in this construction. The exterior walls have been stuccoed and the interior walls plastered where a finished effect was desired.

The roofs are of shingles, and a certain amount of colored terra cotta has been introduced into the scheme for decoration, this being composed entirely of the birds and animals of the farm yard, not forgetting the frog which croaks on the four corners of the entrance posts.

Because of the objection of the owner to planting, on the theory that it harbors mosquitoes, these buildings have never received any landscape treatment. The plain stucco walls are sadly in need of planting, and in fact the whole group was designed with the idea that it should receive its embellishment by this means.

The Cottage Planned Orphanage

PART II. DETAILS OF COTTAGES AND ACCESSORY BUILDINGS

Concluding Paper

By HAROLD C. WHITEHOUSE

THE preceding paper considered the practical features of the cottage plan as related to bedroom and service facilities. There remain the rooms of a social nature in the design of which great care must be taken if the full benefits of the cottage system are to be realized. The architect should strive for a homelike atmosphere in all parts of the buildings. Every detail for the pleasure of the child should be worked in. A fault in many cottage-planned orphanages is that the architect has not kept clear of the institutional atmosphere somewhere in his group. Cottages all of one design stiffly arranged and severely landscaped together with an administration building of a monumental character, are the things that, to the passerby, mark the group an institution, and to the child not a place to call home.

Living Room. This room is the center of the house. It cannot be too spacious; it is bound to be limited. For a cottage of thirty children a good average size would be a floor area equivalent to seventeen feet by thirty-four feet. For smaller capacity cottages the size might be reduced in proportion. It should be borne in mind that at times the children of one cottage will entertain the children of another, and this would make a large number to accommodate, therefore, the living room should not be too small. Provision should be made for books and magazines, unless this item is taken care of in a central library. A fireplace helps to make the room homelike.

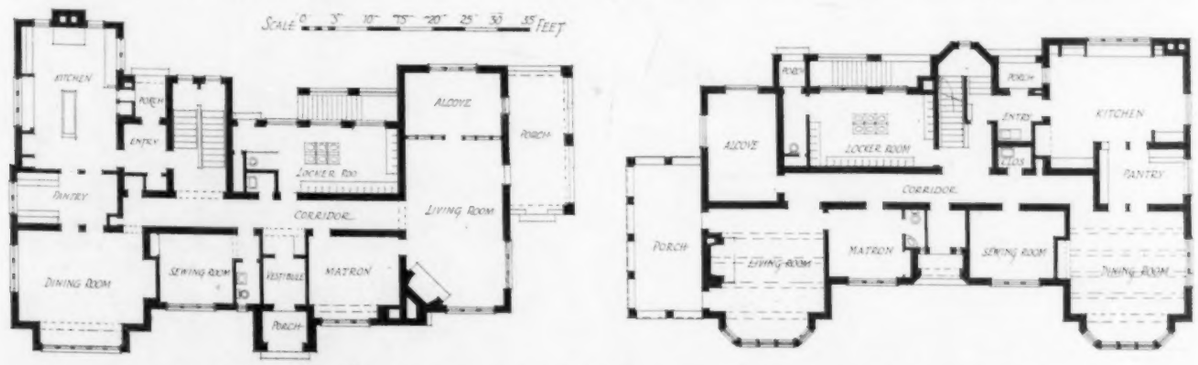
A very useful room in connection with the living room is one for music where some of the children could practice their music lessons, or a quiet alcove where some could seclude themselves to read, apart from the more obstreperous youngsters. This part of the house should be furnished with good substantial furniture, rugs of good color, hangings well selected and the whole in good taste.

The writer has had discussions with people who have asked how it could be practicable to keep a place of this sort looking homelike and in good order with so many children constantly around. It is easily possible. There are institutions in this country, one in particular which cares for delinquent boys, which is built on the cottage plan with about twenty-five in each cottage. When you enter the living portion of any one of the cottages, you are impressed with the neat, homelike and orderly atmosphere. The walls are hung with pictures, upon the tables are books, magazines, reading lamps, and on the couches are cushions, rugs are on the floors, in fact no detail has been overlooked to create a real home. The average person, however, knows little of the results secured from the training of children by properly administered institutions. A homelike environment creates in the average child a certain respect for the privilege thrust upon him which he usually honors.

A porch of good size directly connecting with the living room or some main part of the house is necessary. It is here during rainy weather the children can play and be under the eye of the matron.

Dining Room. The dining room needs good lighting, ventilation and sunshine, but should not be too large. Make it large enough for its purpose but if it is too large, it will not be homelike. The scheme of seating the children at tables varies in institutions, some use tables seating only four, others use two or three tables seating six, eight or ten each. Some institutions use four seats at a table for the older children, and seat six or eight of the younger at a table in charge of one of the older children.

Great improvements have been made in recent years in the system of feeding children. It is regrettable to visit many of the present institutions



Two First Floor Plan Arrangements for Cottages accommodating twenty-five inmates each, that incorporate features described in the text

Whitehouse & Price, Architects

where they are still using the tables and chairs of orphanages of fifty years ago.

"Long, bare, or oilcloth covered tables, with backless benches for seats, the relics of barbarism. Agatized metal dishes, often chipped and scaled so as to expose rusty patches, and rusty cutlery and spoons, these should be replaced everywhere with a fair quality of china and plateware. Tablecloths and napkins have a distinct educational value, say nothing of the need for decent service. Chairs should always be provided, and cheerfully decorated walls should surround the tables. Light and beauty should be utilized to make the youthful diners happy, and promote the digestion of well selected and properly cooked food."*

A buffet should be provided for the dining room. This should be carefully designed to hold the silverware, knives, forks, spoons,and table linen in drawers of proper size. The placing of these articles in good order in the drawers is an important part of the training of youngsters. The drawers should not be too high so the child may easily arrange the silver. The top of the buffet should have ample space for sugar bowls, salt and pepper holders, water pitchers, etc., and there should be a few cupboards.

The designer should be careful in the proportions of heights of various fixtures. It is not the intention of the author to recommend things Lilliputian in size, but of a size merely to aid the child in its efficiency.

The use of Lilliputian size furniture is not generally recommended because the average child of the present day orphanage is placed out sooner or later in a permanent home where things are not diminutive in scale. This is a small detail, but as one authority said: "It might have a tendency to make the child awkward in its new environment."

The basement of the cottage might be given up to a play room, the heating plant, storeroom, and a small laundry with wash trays. This laundry is used for washing out articles that the matron does not care to send to the central laundry. If the basement has all the space that is needed and does not cover the whole ground plan, it is an advantage. A part basement under the average residence is never much of an economy in construction, but in orphanage cottages the space should be kept down to reduce the care of maintenance.

The play room should be of good size, well lighted and ventilated. Lockers for the children's toys, and wall seats might be provided. Some play rooms are worked up in a very decorative manner with friezes illustrating tales from Mother Goose, small furniture for dolls' tea parties, play houses, and other toys. Where the cottage houses twenty to twenty-five children, this room usually works in better and more economically in the basement, but for cottages of smaller capacity it may be possible to arrange it on the first floor or one of the upper floors.

Receiving Cottage. Where large numbers of children are cared for, and it is necessary to watch

* "Child Placing in Families," W. H. Slingerland, Department of Child Helping, Russell Sage Foundation 1918, p. 105.

Kindergarten at the Chicago Nursery and Half Orphanage Asylum, Chicago, Ill.
Holabird & Roche, Architects

carefully for any contagion entering the institution, a building is provided for the reception of all newcomers. After the child has been thoroughly examined as to its fitness, physically and mentally, to become an inmate, it is placed in this building and kept for two or three weeks to make sure it will develop no disease. This receiving cottage is maintained as a separate unit, except that no training whatever is carried on in the preparation of meals, and similar household duties. This work is done by the matron or nurses in charge. The children are generally received in the building in groups of a certain number of boys and girls, kept for a certain period, and then sent to the various units. The cottage is then thoroughly cleaned, and another group is received.

A suggested plan for a building used this way, would be: two dormitories, with toilets and lockers, one for boys and one for girls, a dining room and kitchen, living room and such other minor details as needed. This building need be very unpretentious, possibly with a basement only large enough to house the heating plant.

Administration Department. A building or space should be provided to house the administrative offices, together with other departments, possibly the superintendent's living quarters (or he could have his separate home in the group). It is of particular advantage in planning for the superintendent's office to place it, so he can at all times survey the main road of travel to and from the group, and if possible have a good view of the cottages. This is true also of his sleeping quarters. His office should be directly connected with all parts of the institution by telephone. A system of inter-communicating telephones or, if the institution is large enough, a private branch exchange is essential.

A room for general assembly of the whole institution for entertainments is a feature carried out extensively in some places. The children are fond of, and enjoy taking part in playlets and musicals. Provision for a moving picture machine is a valuable asset. If dancing is allowed in the institution, a level floor should be provided.

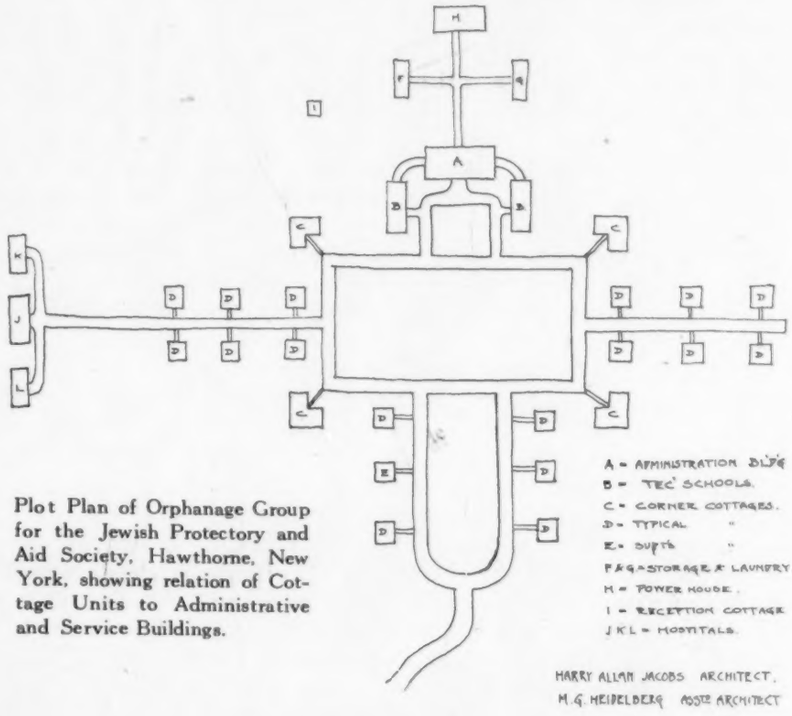
If religious services are held in the assembly room, provisions should be made for an organ or piano. It is quite customary for most institutions to use the assembly room for gatherings both social and religious. The capacity of the assembly room should be two or three times the number of children cared for. This extra seating capacity will be found necessary for visitors from the outside. The public should always be welcome, both children and adults. An orphanage well conducted generally encourages the mingling of the children with those from the outside.

A room for examination purposes, both physical and mental, is sometimes provided. This room may be combined with a room in the infirmary (if the same be located in the administration building) to take care of minor medical attendance that children may need.

If the institution does not maintain its own school system, sometimes a room or small building for a library is an excellent thing to aid in the child training. Here can be placed innumerable volumes and possibly pictures or even a small museum. In this way the child will have access to properly selected books that lead him along the way of right thinking.

A room well lighted and partially fitted for a visiting dentist is absolutely necessary. The usual and necessary plumbing outlets should, of course, be provided.

Infirmary. An infirmary provided in a wing of the administration building or attached to some other building in the group is necessary to care for sick children. One well known institution, where as many as seven to eight hundred children are cared for, has erected a hospital building and has found it almost useless because the sick rate was kept so low. The amount of sickness among children is small where they are well cared for and live with a daily routine of great regularity. Therefore a small infirmary is


A = ADMINISTRATION BLDG
B = TEC SCHOOLS.
C = CORNER COTTAGES.
D = TYPICAL "
E = SUPTS "
F & G = STORAGE & LAUNDRY.
H = POWER HOUSE.
I = RECEPTION COTTAGE
J K L = HOSPITALS.
HARRY ALLAN JACOBS ARCHITECT.
H. G. HEIDELBERG ASSTE ARCHITECT

Plot Plan of Orphanage Group for the Jewish Protectory and Aid Society, Hawthorne, New York, showing relation of Cottage Units to Administrative and Service Buildings.

all that is generally recommended and a few rooms to care for children's ills are sufficient. A limited number of rooms properly planned to care for contagious cases are advisable, although most institutions prefer to send such patients to a near-by hospital or place of isolation.

A small surgery for the removal of tonsils, adenoids, and other minor operations, together with a small sterilizing room, surgeon's lavatory, etc., are almost necessary, especially if the buildings be located at some distance from town or too far from some hospital. A dispensary should be provided and this might also be used for the minor medical attendance that the children need, as before mentioned.

The infirmary should have a small laundry to take care of linen used by the patients, especially those having a contagious disease. This might be a complete laundry in itself or may be used as a preliminary washing out or disinfecting place of the linen preparatory to its being sent to the central laundry building. Some provision should be made for the burning of any bandages from the infirmary and especially the surgery. If the boiler room is near, they may be taken there in receptacles and burned by the engineer.

A building or buildings should be provided for laundry, storeroom, and possibly a refrigerating plant for the making of ice if the location is not in a cold enough climate for the cutting of natural ice in winter. A very good scheme is worked out in the New York Orphanage at Hastings-on-the-Hudson, N. Y., for the making of ice. In the center of the playground is a tennis court of concrete. The court sets some fourteen to sixteen inches below grade and the sides are dished. The whole thing has a slight drainage toward an outlet in the center. In the summer this is used for tennis and at intervals it is filled with water and the children wade in it. They use it for roller skating, and in the winter when it is filled and frozen, it is used for ice skating. All the ice needed for the entire institution is cut in this basin and stored for summer use.

Storeroom. A central storeroom should be provided; in fact a miniature grocery store, where supplies can be obtained by requisition, is what is needed. A refrigerator large enough to hold meats is also needed and these facilities together with any other related department of the institution could be grouped so that one man or a man and his wife could have charge. The laundry might be planned in connection therewith. The directors of orphanages should co-operate with the architect to get the best results in plan, to the end that the number of employees shall be cut to the minimum, for this is a very large item of operating expenses.

Employees' Quarters. The majority of employees in orphanages are, as a rule, refined and educated. This is particularly true of the cottage mothers or matrons. These women sacrifice a great deal when they come into such work, and their hours of rest and recreation should be amid pleasant surroundings. Usually matrons are relieved from time to time of their duties by other matrons sometimes called relief matrons. In addition to these women, there are usually employed one or two seamstresses, depending on the number of children. A practical or trained nurse is sometimes provided. All such employees should be provided with pleasant quarters, a living or reception room and also a central dining room. Sometimes the relief matrons, seamstresses, nurses, school teachers, etc., have their meals at the various cottages. This is a more economical way of feeding them. As a general rule the living quarters of any of the employees should be kept apart from those of the children if it can be so planned.

Laundry. The laundry is important in the training of the child, especially the girls. It is probably best to have the equipment consist of the usual rotary type washer, centrifugal wringer, mangle, and as a time saver, possibly a dry tumbler. A few trays also are necessary. The laundry, needless to say, should have the best of ventilation, light and a good high ceiling. The handwork of ironing is usually taught the girls in the laundry. A series of ironing boards hung from the wall with electric irons and a safety plug provided, makes an ideal arrangement. The ironing may be done in the same room where the machines are located or in a separate room apart from the washing room. Whatever the arrangement, it should be for the most efficient supervision. Some cottage systems have the girls iron the clothes in the cottage laundry under the supervision of the matron, while all the larger flat work is done at the central laundry.

Bakery. Bread fills an important part in the diet of the children. Most institutions have a central bakery for the baking of bread, and in some instances also pastries, but in most cases the latter are prepared in the cottages. If a bakery is planned only for the baking of bread a small room will serve the purpose. Where one hundred children are cared for, a room about eleven by sixteen feet will be found adequate if an electric oven is used. If a bricked-in oven is used a room larger than this will be necessary. In connection with the bakery there should be a room or closet for the storage of bread on racks as it is taken from the oven.

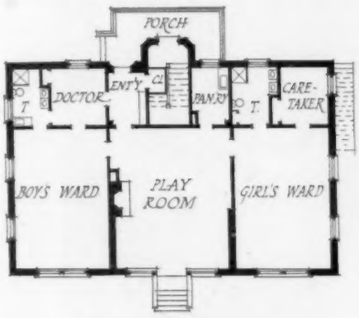
Vegetable Storage. If the group is located in the country or in fact where root vegetables are received in quantities, a vegetable or root cellar is necessary. If agriculture is a feature of the training or carried on merely as a part of the support of the place, the children do most of the work. Examples of this kind of institution are the Lincoln Agricultural School, Lincolndale, N. Y., and Good Will Farm, Hinckley, Maine.

Recreation Features. A leading feature entirely necessary to the health and enjoyment of the children will be a good-sized playground. If the property is large enough such things as a football and baseball field, playground apparatus, wading or swimming pool, will give the children great recreation. Tennis courts might be provided of concrete, to be used also for roller skating, wading, ice skating, etc., as described before. If possible provide a few drinking fountains about the play fields. A building for recreation, including a gymnasium and apparatus, pool, etc., could be provided but is more costly to build and maintain.

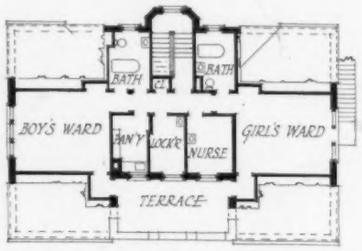
Some time ago I was asked by a client to make a trip through the eastern part of our country and gather data relative to the most modern architecture of orphan institutions. It was his intention to build such an institution to take the place of an already existing plant, which had been built on the congregate plan and was out of date. My client little realized the importance of the administrative side of it, and consequently its bearing on the architecture.

When I visited the first institution which, by the way, was one of the most successfully administered cottage planned orphanages of the country, I suddenly realized upon entering the group, that first of all, I must acquaint myself with the inner workings of not only this institution but all the others I was to visit. To go into details of planning with the superintendent in charge and to learn nothing of his system would mean to get only a superficial acquaintance with his plant and go away little repaid. After a few minutes of brief conversation I asked the superintendent to forget that I was an architect and to please tell me the story of his system.

He opened his remarks by saying: "If your client intends to build an orphanage along modern lines he must build it on the cottage plan." I asked: "Why?" and he said: "Because you cannot begin to create a homelike environment in any other way." His remarks proved, in all my investigations that this was the key to successful planning and many later questions were answered, "Because it is more like a home."



First Floor Plan

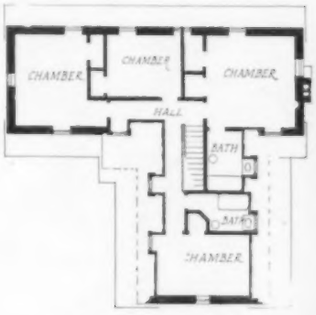


Second Floor Plan
Showing Isolation Wards

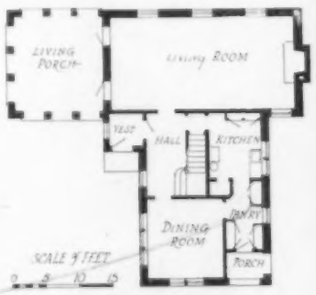
Infirmary Building at the Chicago Nursery and Half Orphanage Asylum, Chicago, Illinois
Holabird & Roche, Architects

A Brick Cottage at Summit, New Jersey

HOWARD MAJOR, ARCHITECT



SECOND FLOOR PLAN



FIRST FLOOR PLAN

The Architect of the Future

PART III. THE CLIENT AND HIS PROBLEM

By C. STANLEY TAYLOR

IN analyzing any profession which contributes directly to the development of social, civic, commercial or industrial expansion, it may easily be realized that the strength of relations between the buyer and seller of service depends largely upon a sense of mutual appreciation and understanding.

In making analytical comparisons of various professions it will be found almost invariably that those professions which deal with arbitrary and clearly defined actions and reactions are better established than those whose activities bring about indirect and less easily understood results. It is interesting to realize that the activities and methods of professions which offer definite results where their services are utilized are vague and mysterious to the layman who willingly bears the cost. On the other hand, professional services which are definite and easily understood, but which bring indirect though logical results, are retained and paid for unwillingly and doubtfully by the client.

For example, the action of civil law is arbitrary and definite. It gives or takes value according to definitive justice, which depends considerably on the presentation of the case. The layman client does not hesitate to retain an attorney, and rarely questions his methods, although they be not easily understood. So in the practice of medicine, although he does not understand its action, the patient willingly takes the remedy prescribed by his doctor. As an example of opposed condition let us consider professional services which are definite in application but indirect in results — for instance, professional advice in the writing of a building code for a city. A good building code, through direct methods of regulation, may indirectly add hundreds of thousands of dollars to the value of local real estate, but a city unwillingly and hesitatingly retains the service of a building code expert! Indirect advertising methods, social welfare, industrial welfare, efficiency methods — all services of a professional nature, come within the latter class. But architecture in which the application of trained professional services brings about results of a most definite and tangible nature has not yet been classed as it should be, in the public mind, as a necessary, dependable profession. The reason for this is a lack of mutual understanding, failure in many cases on the part of the architect to appreciate his client's viewpoint; and a lack of understanding on the part of the client as to the scope and value of the architect's service.

This condition is remediable through the establishment of a better relationship between the architect and his client. To get at the fundamentals of this relationship we find that it is first established during preliminary discussions of the project. The client has usually a fairly clear conception of what he wants, and while he welcomes suggestions at this point he may be easily antagonized by the assumption of an overbearing or "know-it-all" attitude. Such an attitude is justifiable only by a certainty, impossible in a profession where satisfaction as to results depends so largely on the client. This mistake on the part of architects must have been common during past years if the general attitude of the public may be taken as a criterion. The wishes of the client and the result which he has in mind should be the goal of the architect, to be reached by the most efficient and economical means possible!

It has been said in a foregoing article that time spent with a client in analyzing his problem will save much wasted time over the drafting-boards. The logic of this statement is indisputable and this method has added value in establishing a closer relationship with the client.

It does not follow that the architect shall be vacillating in his decisions or lacking in conviction relative to points of his profession. He must, however, always keep before his mind the factor of efficiency of purpose in the building he is designing. Perhaps it is a significant fact that in the more successful modern apartment buildings, elevation design has been sacrificed to fenestration and we find bathroom windows in the front of the building.

An important element in the first stages of the relationship between the architect and his client is the business sense shown by the former in preliminary discussions of the project. In respect to the average building there are two questions in the mind of a prospective client. These are confined first to the æsthetical and useful qualities and, second, to the business aspect. If the building is to be a dwelling or of monumental type the important factors combine beauty of design and efficient layout from the viewpoint of comfort for those who are to use the building. If, however, the building is to be an investment — speculative or permanent — the factors of stability of realty values, income producing features and the usefulness of the building as an industrial tool are those which are of more importance than æsthetic qualities. Here, too, the question of costs becomes more insistent and of prime importance.

The architect must discriminate finely and learn exactly the viewpoint of the client as to this phase of the project. On an investment or business building, offhand costs should never be given. They are too hard to determine and are taken too seriously

by the owner. It seems easy indeed to quote an offhand figure and to amend it after careful estimate, but those who have had this experience will remember the difficulty encountered.

A Canadian architect at a recent informal gathering of business men in New York made an interesting comment on the danger of unprepared price-quoting. He gave the following example of his personal experience:

"Through the apparently innocent medium of a snap-judgment figure I recently lost the best client I ever had," he said.

"He came into the office one day on a question of an alteration to a building which we had designed for him some years before. After finishing this discussion he informed me that he had recently been appointed on a board of directors of a corporation which had already retained the services of an architect, had a building designed and were ready to accept at a board meeting next day a bid from a local contractor. He then stated that according to his judgment the contract price was far too high and after giving dimensions and a general description asked me what I thought the building should be built for. On a cubic foot basis and with a generous addition as a safety factor I gave him $450,000 as a general figure. Two days later he came in and authorized a detailed estimate on the plans. The result was $540,000 as a close figure. I telephoned the result to him and apologized casually for my poor guess — but he never came into the office again. Subsequently I learned on inquiry that he had gone before the board and strongly opposed letting the contract at the figure of $550,000 on the ground that he knew the figure to be high. After receiving the corrected estimate from my office he was forced to admit his error and he never forgave my contribution toward the mistake. His attitude in the matter may have been unfair, but mine was inexcusably foolish. Needless to say, gentlemen, there is now a rule in our office against giving figures on cost until they have been approved by the estimating department." The question of price-quoting, therefore, seems to have as its solution the maintenance of a definite policy involving the quotation only of figures which have been arrived at by careful analysis and calculation. On this basis alone can disappointment and costly errors be avoided in the establishment of relations with the client.

Another feature of interest in the development of the relationship in question is that of the method of submitting preliminary sketch plans. There can be no doubt that attractively presented sketches carry more weight than those which are drawn in an apparently careless manner. There will, of course, be found instances where rough sketches will be unavoidable but in general it is better policy to insist upon sufficient time to make the first presentation of he project sufficiently striking to arrest attention and establish interest. Only recently the writer was discussing the question of financing small house operations with the president of one of the largest building loan organizations in America. In the course of the conversation the building loan expert was commenting upon the usually unattractive manner in which projects which his organization was called upon to finance were presented by the owners, and he said that generally the sketches were inadequate and did not convey any sense of careful and studied preparation. He then referred to the work of a local architect in preparing sketch plans for clients who wished to use them for the purpose of obtaining building loans. In describing this architect's work he commented enthusiastically upon the attractive presentation of water-colored perspectives and plainly drawn plans, and stated that the projected building loan was more than half approved when the work of this particular architect was recognized by style as well as by name. The value of well presented drawings for use in connection with a project which must be promoted or financed cannot be overrated. Pictures always convey more than words, and the business interest of the client may be greatly furthered by the architect who does careful preliminary work.

In working out the plans for a projected building, the general layout should be discussed thoroughly with the owner before the first plans are submitted, and before presentation this should be most carefully considered and analyzed by the architect in order that the first attempt may meet as nearly as possible the approval of the owner and may in many cases offer valuable suggestions to him. In working out the first draft of floor plans for any building, other projects of a similar nature which have proven successful should be studied in order to include the business viewpoint in later discussions with the owner. Careful study of existing buildings is easier than experimental planning and is likely to be subject to less criticism and afford quicker approval on the part of the client. After the general layout is worked out it should be gone over in considerable detail with the owner in order to avoid changes after working drawings have been started. By careful analysis of the plan, and explaining reasons and methods of arriving at conclusions, it will be found that a well established relationship between the architect and his client has been developed, based upon appreciation and a businesslike attitude.

In the next stage of the work, when costs are being worked out and buying begins, the client must be made to feel that the architect is co-operating strongly in his interest. This condition can only be brought about by a careful cost analysis of the building, showing a schedule influenced by the use of various materials for the basic quantities.

As the work progresses under actual construction there is often a tendency on the part of the architect

to allow his interest to abate somewhat, probably owing to the fact that the creative function is no longer being exercised and the work has reached the practical phase which is usually undertaken by the contractor. It is at this point that relations with the owner may become strained and the value of personal attention to the project must not be overlooked. An owner is invariably pleased to know that members of the firm are occasionally visiting the job even though he knows that field representatives of the office are supervising the work. This is particularly true in case of work which is of a personal nature, such as fine residential projects. An excellent example of the value of personal attention while work is under construction came to the attention of the writer while visiting a suburban section near New York City.

At this point attractive country residences were being built on two adjoining estates. The houses were designed by different architects and so good were the plans of each that it was difficult to determine which could be called the better house, preference depending upon personal taste rather than on architectural merit. On visiting the same section two years later it was noted with interest that another fine residence more expensive than either of the two first houses, had been constructed in the neighborhood, as well as an imposing country club. On inquiry it was learned that this residence and the country club had been designed by an architect who had planned one of the original houses, and as a matter of interest inquiry was made as to the method of selecting this architect. It was found that both the more recently constructed dwelling and the clubhouse constituted work which had been obtained by the architect through recommendation from the satisfied owner of one of the first houses. It was also found that both architects were considered in awarding the work on the larger house, but the fact that seemed to weigh most heavily in the decision was found to be that of personal attention. The successful architect was the one who visited his work often and studied on the ground many of the small problems which were more successfully solved for the owner through direct co-operation with the contractor. In the case of the second house the work was done equally well with the exception of small and almost personal details of comfort and convenience, which after all are in many cases of first consideration to the client. The architect who visited the job often met his client there on many occasions and the impression given was one of real service, and the stronger recommendation was naturally based upon the stronger impression.

Bearing out this statement it might be interesting to quote from a letter which was shown to the writer as this article was being prepared for publication. This letter is addressed to one of the members of the firm and contains the following statement:

" Your enclosure of final bill for professional services has been received and it gives me pleasure to mail you check in settlement. Should it seem desirable at any time to have photographs taken of the house we of course will be pleased to have this done. Friends in the immediate vicinity in several instances have been outspoken in their admiration of the building and of the appropriate and harmonious setting.

" We have appreciated the *personal attention* you have given to the planning and the construction of the building. It is gratifying to let you know that my wife has repeatedly expressed satisfaction at the results obtained. We are genuinely satisfied in every particular."

The keynote in this letter lies in the two words, " personal attention," and it is for such a result that every architect should strive, not only in creative design but in the maintenance of good relationship.

Even at the point where the work has been completed in a manner satisfactory to the client, the interest of the architect should not drop entirely. A study of completed projects from time to time in order to determine how various innovations or ideas may have worked out in practical use and to watch how the details of planting arrangements have developed, is not only of direct benefit to the architect as a source of added information, but in most cases serves to maintain a cordial relationship with the client which in its potential sales value should never be allowed to die out completely. In the case of a commercial building or an investment project the architect may gain many valuable points through a study of the operation of the building during several years after its completion.

If we were to select the three critical periods in the relationship of the architect and his client they would undoubtedly be: first, during the arrangement of the terms of the contract between the principal parties; second, at the time when materials are being purchased and the work carried out, and third, during the first year following the completion of the operation.

The general terms of payment for architectural services have been clearly established by the profession, and are usually acceptable to the client provided he realizes fully the work which must be done by the architect to earn his fee. Unfortunately for the profession, there has not been established clearly in the public mind a conception of what this work is or of the benefit which may naturally be expected through retaining the services of a good architect.

To offset this condition and to explain in certain terms what a client may expect from the architect, it is often found advisable to prepare a general report setting forth the problem and its solution, a schedule of the work which is to be undertaken by the architect and the terms on which this work is to be carried out. The time and methods of payment should be clearly defined and from time to time progress reports should be rendered showing plainly the work done to date.

In considering the legal aspect of contractual relations between the architect and the client there is one point well worth remembering. That is, if a client shall at any time break a contract the damages which the architect may usually collect are limited to those which he can definitely show. In other words, the full amount of the contract will not usually hold in court, but damages will be limited to the amount of draftsmen's time plus overhead and a reasonable payment for the architect's own time.

When the work is to be carried out and contracts let, great care should be taken to keep the owner appraised of the terms of contracts and the amounts and terms of all indebtedness incurred as his agent. The better method is to have the owner approve all items at regular intervals and the terms of principal items before they are carried out.

Returning again to generalities, we find that the question of the establishment and maintenance of good relations between the architect and his client resolves itself into the resolution that the factors of utility and personal service enter more strongly than does that of artistic merit of design.

In a small community not far from New York City is located a beautifully designed church. Its connotation, its restfulness, create the atmosphere of quiet peace which is the principal object of attainment in this class of design. Practically, however, this building is a failure. The architectural designer will probably never be called upon to design another building in that community. The members of the congregation for whom this church was built, while enthusiastic in praise of the artistic qualities of the building, are not enthusiastic in recommendation for the architect. The reason is that the architect failed in practical points. The interior arrangement of the building is not suitable for carrying on necessary activities. Plumbing fixtures were poorly chosen and have not given satisfaction. The church is not well heated or ventilated. Upon analysis it is found to bear the stamp of impracticability, which so often spells failure in artistic creation.

Seeking the cause of failure in maintaining relations between this architect and his client, we find: first, that he did not spend sufficient time with the minister and the church community to learn what the practical needs of the congregation were. Having the full confidence of the client in the matter of mechanical installation, he did not trouble himself to discuss his selection with men in the congregation who had practical knowledge of the subject. Too much attention was given to creative design and too little to practical equipment and supervision. As a result almost the entire value of credit for a splendid design has been swept away by practical objections and for reasons resulting from conditions which could easily have been avoided.

Perhaps the best guide and criterion of what the relations in question should be may be had through the simple and time-worn expedient of placing one's self in the mental attitude of the client through various stages of a building operation. In the first stage we find the client's mind occupied with the question of whom he shall select as architect; what he must pay and what service he may expect. The selection will probably be through friendly advice, or possibly through the medium of presentation of some architectural work in a popular magazine. The question of what service he may expect is one which leaves the mind in a hazy condition. How can the client determine this? There has been no organized publicity on the part of the architectural profession to tell the public what they do in connection with building work. The result is that there are no limitations as to the service which the client expects, for he expects from the architect as a professional adviser all the knowledge about building operations which he himself does not possess. He expects to tell his architect what he wants, and from the architect he expects enthusiastic personal attention, for to the client his own project fills the entire horizon and he can never be brought to realize that to the architect it may be only a sector. He expects from the architect a building which will constitute a perfect machine for the carrying out of whatever activity it is designed to house. He credits the architect with knowing what buildings have been successful in this line and which have failed and why. He looks to the architect to be thoroughly equipped with up-to-date knowledge of the best forms of mechanical installation and for protection in the selection and purchase of building materials. When actual construction is being carried on he is forced to depend largely upon the architect for the enforcement of specifications and honest building methods.

We of the profession, having placed ourselves in the mental attitude of the client, can now return to introspection, primarily to determine whether or not we are equipped to provide this service which the client is clearly entitled to, and finally to a determined resolution that our organization individually and collectively is to be strengthened in its weak spots until it is thoroughly equipped to create and maintain the best possible relations with clients who must perforce place their dependence upon the profession of architecture.

We are passing through a period of business and personal self-determination. When much of the complacent gloss has been rubbed off our social, professional and commercial methods by the abrasive action of a world war, we are learning as never before to appreciate the viewpoint of others, and service, a catchword of the past, has found its definition.

To summarize, then, the architect himself may establish better relations with a client through a more complete appreciation of the client's viewpoint and by establishing his own organization on a basis which will insure complete protection to the man who builds.

Construction Problems

REBUILDING THE CUSTOM HOUSE AT BOSTON, MASS.

By N. A. RICHARDS, ASSOC. MEM. A. S. C. E.

WHEN the demands of business a few years ago forced the Government to consider a new Custom House in Boston, a unique problem was presented. The old Custom House, built in the administration of Andrew Jackson, had been a landmark in Boston for many years. Built of granite, with a low central dome and four heavy pediments supported on massive columns, the old building appeared, through the sturdiness of its construction, to have successfully resisted the encroaching waves of modern construction. To think of tearing down the old building was out of the question; it was too firmly entrenched in the hearts of the people. The site it occupied, however, was the strategic location for the proposed new building.

At last the happy solution presented itself to the architects, Messrs. Peabody & Stearns, of obtaining the required space by making the new building in the form of a tower, and — to maintain inviolate the sentiments of the citizens — utilizing the old building as a base for the new. A design carrying out this idea most excellently, resulted. The new tower of granite rises five hundred feet above the street, and the strong lines of the old building, reaching up to about the level of the fourth floor of the tower, form a harmonious base for the new.

Even the interior appearance of the old building was retained. The central dome had roofed a finely proportioned rotunda, open above the first floor to a height of sixty feet. In the completed new building this has been restored, and the structural features of the tower have not been allowed to disturb it.

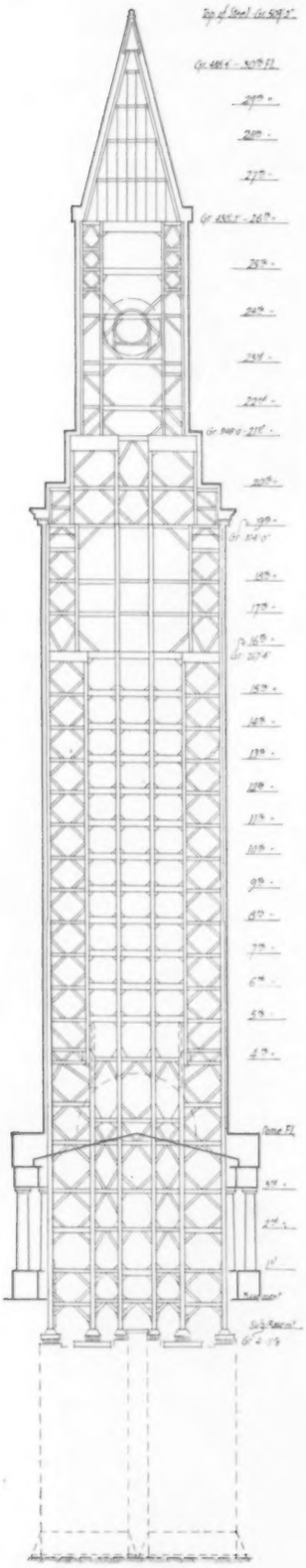
The tower in its lower stories is about sixty feet by seventy feet in plan. There are eight interior columns throughout the typical stories. If these had been allowed to run through to the foundations, however, the dome and the rotunda of the old building would have been ruined. To avoid this, trusses were introduced just above the old dome, to carry these columns and transmit their loads to large supporting columns located under the walls of the tower and outside the rotunda. These trusses are about twenty-five feet deep over all with their top chords in the fifth floor level. They span the full width the short way of the tower and are very heavy, supporting, as they do, practically the full height of the tower.

The wind bracing of the tower is entirely concealed in the walls. It is made up of knees where space would permit, and gussets elsewhere. An assumed pressure of thirty pounds per square foot was provided against.

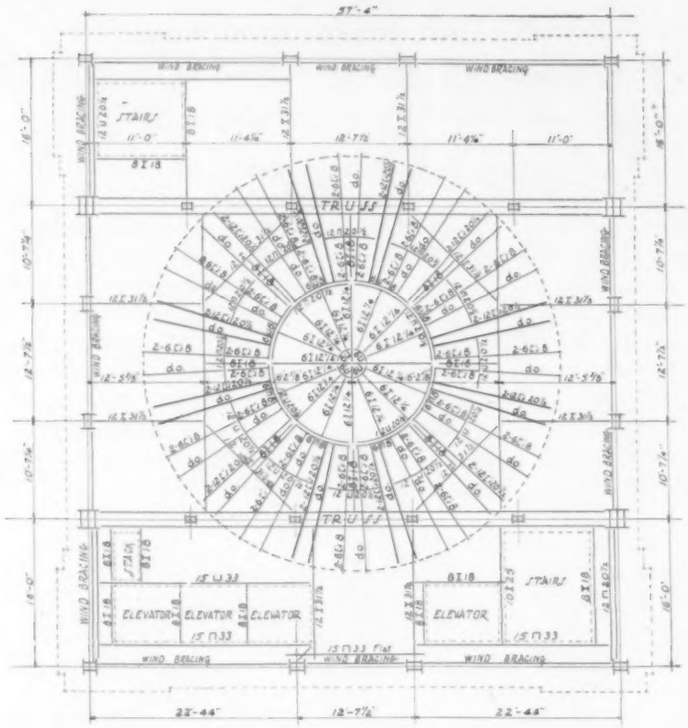
The old building had rested on short wooden piles driven into the rather soft clay which generally under-

General View of Boston Custom House

Peabody & Stearns, Architects — Purdy & Henderson, Consulting Engineers

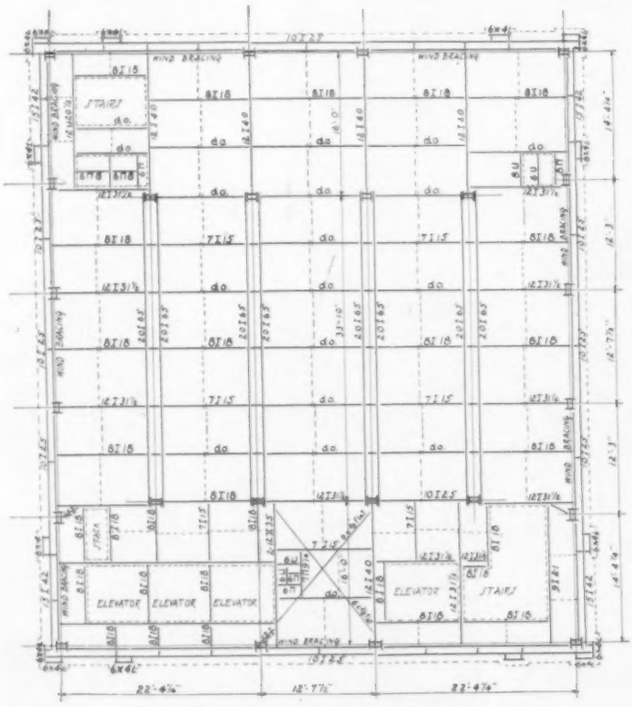


Wind Bracing at North and South Elevations

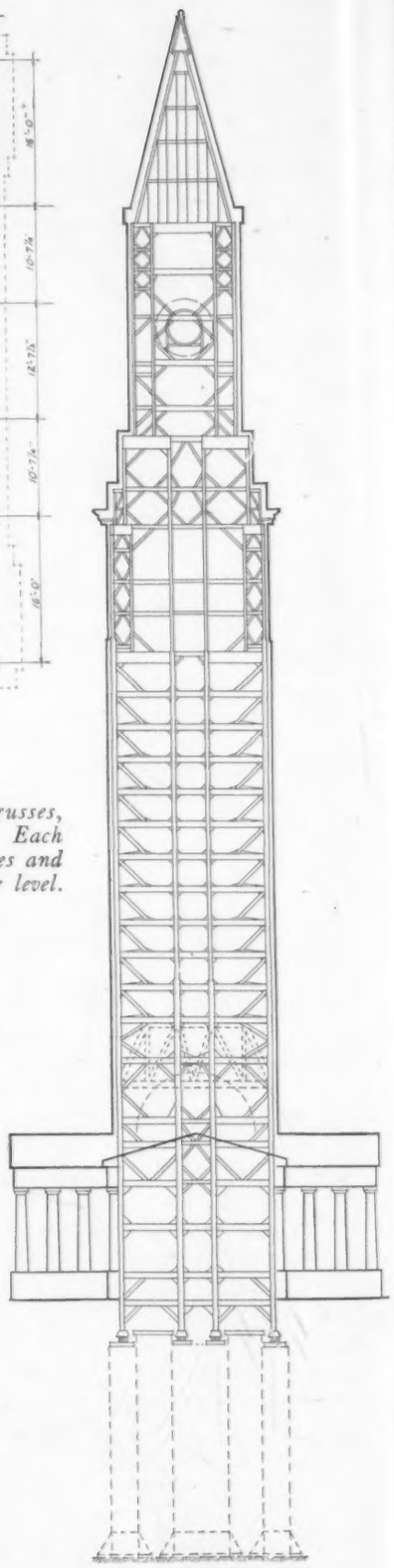


Framing Plan at Fifth Floor Level Showing Details of Dome Framing

The interior columns above the fifth floor are supported by two trusses, a detail drawing of which is reproduced on the opposite page. Each truss carries four columns and has a span of 57 feet, 4 inches and a height of about 25 feet, its top chord placed at the fifth-floor level.



Steel Framing for Typical Tower Floors



Wind Bracing on East and West Elevations

UNITED STATES CUSTOM HOUSE, BOSTON, MASS.

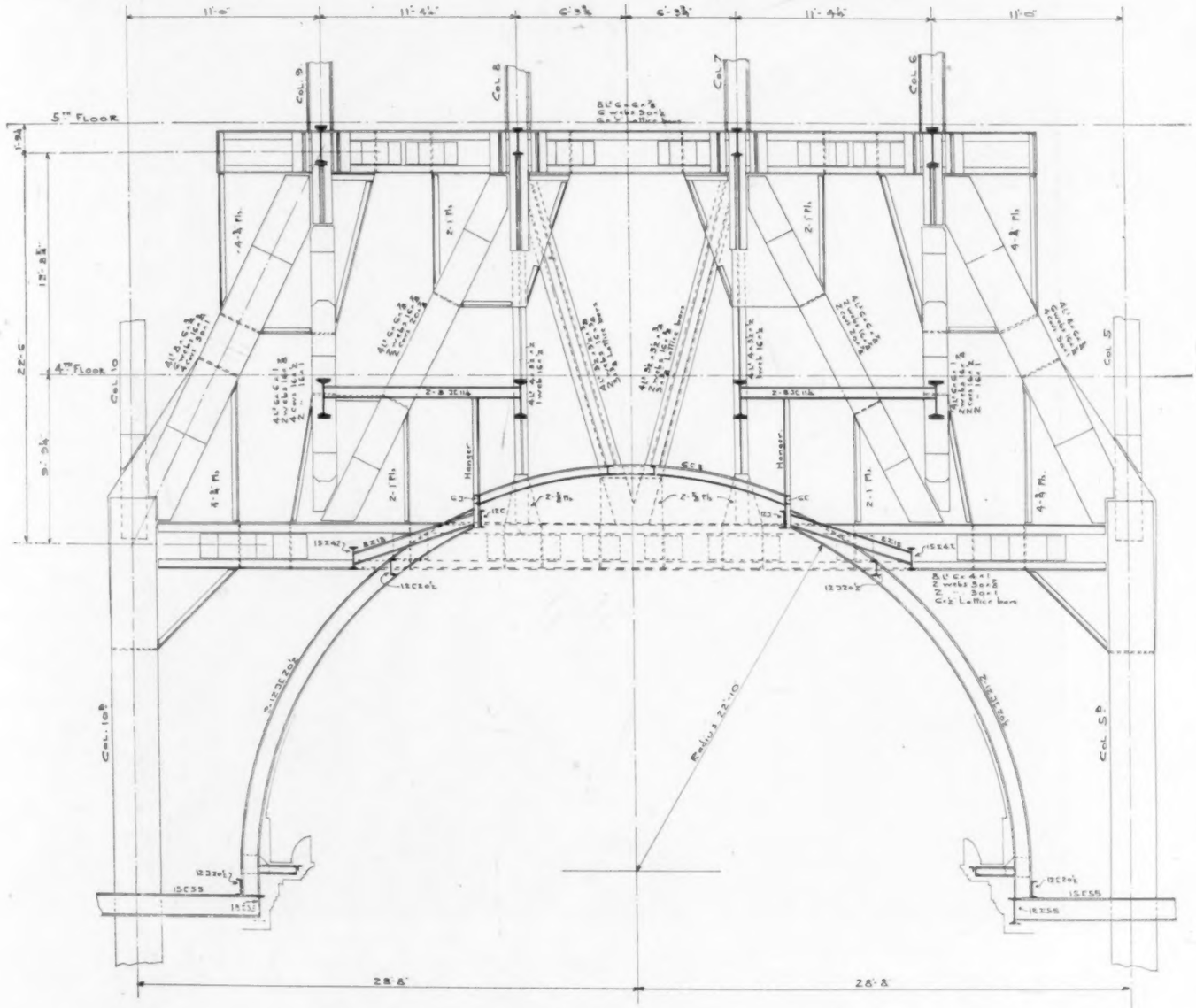
PEABODY & STEARNS, ARCHITECTS

PURDY & HENDERSON, CONSULTING ENGINEERS

lies this portion of the city. The depth of this bed of clay was considerable; in fact, the first strata reached which would offer appreciably better support than the clay is nearly one hundred feet below the level of the street. Here a bed of heavy gravel and boulders occurs, overlying the rock. The great height of the tower, with its heavy granite walls, resulted in enormous loads concentrated over a very limited area. Furthermore, the interior columns being carried on trusses, and their loads thrown on the exterior columns below the fifth floor as described above, the concentration of loads was thereby much increased. As water was found not far below the subbasement in the old building, the foundations for the tower therefore presented a considerable problem. The solution finally adopted was to sink large caissons under air pressure to the level of the gravel and boulder strata, approximately one hundred feet below the street. This strata furnished unyielding foundations.

The sinking of these great caissons inside the old building caused considerable disturbance to that venerable structure. As the caissons were forced down they sucked the adjoining clay and piles with them to such an extent, that several large cracks developed in the granite window heads, columns and walls. No serious damage was done, however, and all was finally restored.

Today the old building and the new tower blend in a harmonious whole, as a memorial to a successful compromise of business and sentiment.



Detail of Trusses over Roturda Dome Supporting Interior Columns
United States Custom House, Boston, Mass.

Peabody & Stearns, Architects

Purdy & Henderson, Consulting Engineers

ARTHUR DURAND ROGERS

Arthur Durand Rogers

AN APPRECIATION OF THE MAN AND HIS WORK

His magic was not far to seek,
He was so human! Whether strong or weak,
Far from his kind he neither sank nor soared,
But sate an equal guest at every board:
No beggar ever felt him condescend;
No prince presume; for still himself he bore
At manhood's simple level, and where'er
He met a stranger, there he left a friend.— *Lowell.*

WITH the passing of Arthur Durand Rogers, a life dedicated with whole-souled love to the advancement of the architectural profession has ceased to impart active thought to its problems, will no longer aid in bearing its obligations or participate in its joys and successes. The work that he has done, however, has earned for him a meed of recognition that will make his name live in the field which he chose for his labors. The best years of his busy and useful life were unselfishly devoted to an ideal— the development of architecture in America, and the stimulation of the members of the profession to greater efforts, that architecture might attain the dominant position to which its importance, as the mother of the arts, entitles it. An intuitive comprehension of the correct value of work and men was his fortunate possession, and this faculty, combined with a breadth of vision and a constructive mind, enabled him to aid and serve in an exceptional manner, as few men have, what he was pleased to call, the " noblest profession."

He enjoyed a wide acquaintance among architects and many others interested in the advancement of the building industry, and as editor of this journal, extending over a period of twenty-seven years, he exerted an influence of no small value on our architectural development, in presenting to the profession the best examples of current work and most progressive opinions. He possessed the same high ideals that are inherent in the leaders of the profession, and though he elected to be a publisher, he was essentially an architect in thought.

While he was generous with his praise, he was not unmindful of our shortcomings, and was equally candid and fearless in his criticisms. It was characteristic of him to ask, about a year ago, " In What Manner, and By What Means Can the Practice of Architecture be Developed in Order to Win a Larger Recognition? " Having seen a problem, this was his method of urging us to work out the solution.

He delighted in seeking merit among the younger men and hailed with joy the formation of the Architectural League of America, by the members of the architectural sketch clubs. He gave freely of his time and counsel in its formative period and did much to promote the extension of educational facilities which was the prime reason for its existence. When the work was taken over by the Institute, he, together with members of the League, felt that it was in safe hands and would be properly conducted. He never allowed the friendships formed among its members to lapse, and delighted in talking over the scenes of the conventions and recalling the personnel of the membership.

He enjoyed exploring, usually during the early morning hours, the cities he visited, as much to get the atmosphere of the place as to pick out, as he did instinctively, the best of the recent buildings and compare his opinion of them with that of the local architects. His constant aim was to make his publication a living force, to keep in advance of the thought of the profession, and to lead and guide it.

One of the interesting features of *The Brickbuilder* was the series of competitions he held from time to time, for in them he was able to enlist the creative faculties of the younger men in solving current problems and, at the same time, awaken an interest in architecture among manufacturers of building materials and the users of their products. He foresaw, as few men have, that the largest opportunity for the appreciation and growth of architecture lay in extending a knowledge of it among the people who had small problems to solve. For twenty-five years *The Brickbuilder* was, to those of us who knew him, a reflection of his own advancing thought. When he changed its name to THE ARCHITECTURAL FORUM it was because his vision had so broadened that he felt the publication could be a forum for us in fact as in name, and he confidently expected us to embrace the opportunity he provided. The publication under both names has always exerted such an influence for progress that it is a most fitting memorial to him, and the inspiration he has left his successors is their greatest heritage.

We are now passing through a period of self-analysis that is bound to be productive of good, and the removal of a man of such abounding vitality and sincerity of purpose as he possessed makes our loss at this time the greater. Even to the last he was busy with plans for his future work in our behalf, and it must have been with keen regret that he felt unable to go on with them.

The profession owes him a debt of gratitude that it can best repay by carrying on the work he was called upon to leave, and by striving to attain the ideal position he wished us to occupy.

He had such a wholesome, sunny disposition, true sense of humor, and such a sane appreciation of the things that make life worth while, that it was a privilege to know him. He was in the full sense of the word a gentleman, a delightful companion and a loyal friend. His whole career was one of public-spirited service, and his work will endure as the mark of a successful life.

For his uplifting influence, breadth of vision, kindly tolerance of our shortcomings, his lifelong labors, love of our work and his affection for us, it will be a delight for those of us who knew him to recall his memory, and a pleasure for the profession to consider itself the richer for his having lived.— ERNEST JOHN RUSSELL.

EDITORIAL COMMENT

A MONTH ago there was little evidence of stabilization in either material or labor markets and no disposition on the part of those investors and others having resources for the erection of buildings badly needed, to go into the market with actual bona fide propositions that would materially aid in bringing about stabilization. The past few weeks have seen a decided change in attitude, however, and it may be safely said at this time that a movement toward the general resumption of building has been definitely started. A conviction founded on the same premises advocated soon after the signing of the armistice by those able to see beyond immediate conditions, that the prices of building materials cannot undergo any appreciable reductions for a long time to come, has now been widely accepted. What was a short while ago a spirit of defiance and policy of waiting for prices to drop has changed to an attitude of almost complete compliance and eagerness to start construction work so that buildings may be ready to participate in the advantage of high rentals as soon as possible.

This hopeful condition has been caused by several factors, all of which were as readily apparent months ago, if only the building industry and public were astute enough to see actual happenings, instead of a future colored by visions of financial stress, unemployment and many other wholly imaginable evils that could exist only by following such a policy as was then conceded conservative and in the best interests of financial stability. The cost of producing all building material has greatly increased, due in the largest part to the higher wages paid, and in smaller degree to the greater cost of raw material. These present costs of manufacturing cannot be lowered, and in view of the high cost of living it is not only necessary but desirable to maintain wages at an adequate rate. The movement of the wage scale is generally conceded to be upward and not down; those difficulties involving wages that have arisen since the signing of the armistice and that have been adjusted, show the adoption of a shorter working day and in some instances a higher rate of pay. Stocks of practically all building materials are low; production was curtailed through the war period and time has been required to recruit the necessary workers and resume normal output. It is realized by every one that eventually the present overwhelming demand for structures of many kinds must be met, but recently a few far sighted and clear thinking men have realized that when the rush does start, it will not be a question of what price will be paid for material, but whether it can be had when it is wanted. An instance of this is shown in two large purchases of material recently reported. A brick dealer bought, at an advance of $1.00 per thousand over the price the yards were willing to quote on order, a half million common brick, so that he might be certain of having the material delivered in time to meet demand for it. A similar purchase of lumber was quite recently made for an identical reason.

In the cement market, prices have advanced since the first of the year, and with the large quantities of this material that will be required for extensive road construction to be undertaken in all parts of the country, in addition to a building demand that should soon greatly exceed normal, the probability is that they will advance still further rather than recede.

The labor situation is gradually improving and the prospects are good for an early settlement of wage scales in those branches of the building trades, where demands for higher pay are being pressed. In New York, contractors are anticipating a compromise of $6.00 per day for the carpenters now on strike, and submitting bids on that rate of wage. Another factor in the labor situation is the greater efficiency that may be counted upon from the workers. During the war period, with great Government structures being built, there was little need for laborers to make special efforts to hold their jobs; work was plenty and as a consequence, less was performed in a given time than would be under other conditions. Today there is competition among laborers, and greater effort is made to hold a job once it is had. Recent tests made on concrete work show reductions of from 30 to 80 per cent in cost with material prices the same, over conditions that held before the close of the war, that are accounted for solely by more efficient labor.

An honest judgment of present conditions forces the conclusion that the price of building construction is as low as it will be for a long period. Further waiting will only complicate the situation, and aside from causing loss of revenue from buildings that should now be under construction, will operate to bring about higher costs later. Large building programs are being planned by many states and cities to take up the slack in labor, and when they are under way the effect on the construction market will be a stimulating one. The opportunity of the private builder to secure the most favorable conditions is right now. Architects should make it their plain duty to convince themselves with regard to present actual conditions and then advise their clients in a positive manner that will offset the unfounded pessimism which has too long held in check the resumption of building.

Senator Calder of New York, speaking at Baltimore recently, made the following significant statement:

"The nation should immediately interest itself in the investment of its labor and surplus capital in the basic industry of construction, because every dollar and every hour of labor thus invested has earning power and will ultimately cheapen the cost of production of commodities.

"This problem will be met if public interest is centered upon it — if the people as a whole cannot solve this problem, no committee or officials of the people can settle it."